



**US Army Corps
of Engineers®**

RFP No. W912DW-04-R-0003

Seattle District

FY04 Whole Barracks Renewal

Fort Lewis, Washington

**Construction Solicitation
and Specifications**

UNRESTRICTED

November 2003

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THIS PROCUREMENT IS:

Open to both Large and Small Business

FORT LEWIS SITE VISIT INFORMATION:

- ◆ A one time proposal conference and site visit for phase II offerors will be held at a later date. Details will be provided via amendment.

FOR INQUIRIES, CONTACT THE FOLLOWING INDIVIDUALS Monday through Friday between the hours of 8:00 a.m. and 3:30 p.m.:

TECHNICAL MATTERS: EMAIL ALL QUESTIONS CONCERNING TECHNICAL SPECIFICATIONS TO THE FOLLOWING ADDRESS: For Technical Matters, questions must be submitted via the internet on the DRChecks bidder inquiry system. Registration and password are required and may be obtained at <http://65.204.17.188/projnet/home/version1/index.cfm?RESETAGENCY=USACE> (click on Bidder Inquiry, fill out the form provided and click 'continue'). Upon receipt of password, login at http site, click on Bidder Inquiry, select "NWS Seattle District" and click 'continue' Select project: click on 'continue', select "Bidder Inquiry": and 'continue'. Enter your questions and click "Submit Inquiry".

BIDDING DOCUMENTS: Register for solicitations at the Internet site:
<http://www.nws.usace.army.mil/ct/>

PLANHOLDER'S LISTS: Lists may also be obtained from the same site

ADMINISTRATIVE MATTERS:

Sherrye Schmahl (206)764-6588 FAX: (206)764-6817
sherrye.l.schmahl@usace.army.mil

All individuals are at the following mailing and street addresses:
(Mail) Seattle District Corps of Engineers, P.O. Box 3755, Seattle, WA 98124-3755
(Street) 4735 E. Marginal Way S., Seattle, WA 98134-2385

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CAUTION TO OFFERORS

<u>SECTION</u>	<u>TITLE</u>
SF1442 -	Pages 00010-1 thru 00010-5 (00010-3 is reserved for use at a later time) & Subcontracting Plan, Pages 00010-6 thru 0010-12
00100	Instruction to Bidders
00110	Instructions Conditions and Notices to Firms
00600	Representations and Certifications and other Statements of Offerors, and Pre-Award Information
00700	Contract Clauses
00800	Special Clauses, which include the following: a) Special Clauses Pages 00800-1 thru 00800-9 b) Davis-Bacon General Wage Decision No. WA030001, WA030002 and WA030014
00810	Design-Build Contract Procedures
00860	Statement of Work
00890	Outline Specifications
01000	Technical Specifications
	01001 thru 15910

RETURN THE FOLLOWING WITH YOUR OFFER:

SF1442 - Pages 00010-1 thru 00010-5 (00010-3 is reserved for use at a later time)

Section 00600 - Representations and Certifications and Pre-Award Information

20% Bid Bond

*Additionally, if a large business is the apparent low, it will be required to submit a "Small Business and Small Disadvantaged Business Subcontracting Plan," no later than 5 working days after offer closing.

**** BONDS – Matter of All Seasons Construction, Inc. GAO Decision B-291166.2**

Bid Bonds must be accompanied by a Power of Attorney containing an original signature from the surety, which must be affixed to the Power of Attorney after the Power of Attorney has been generated. Computer generated and signed Power's of Attorney will only be accepted if accompanied by an original certification from a current officer of the surety attesting to its authenticity and continuing validity.

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!!!CAUTION TO OFFERORS!!!

1. **TELEPHONES:** Limited telephone service is provided in the lobby. Only two public telephones may be used by offerors for completing offers.

2. **BUSINESS HOURS:** For the Seattle District Corps of Engineers are from 7:30 A.M. to 4:00 P.M., Monday through Friday.

3. **AVAILABILITY OF FUNDS:** Funds are not presently available for this acquisition. No contract award will be made until appropriated funds are made available from which payment for contract purposes can be made.

BEFORE SIGNING AND MAILING THIS OFFER, PLEASE TAKE NOTE OF THE FOLLOWING, AS FAILURE TO PERFORM ANY ONE OF THESE ACTIONS MAY CAUSE YOUR OFFER TO BE REJECTED

4. **AMENDMENTS:** Have you acknowledged receipt of ALL amendments? If in doubt as to the number of amendments issued, please contact the Plans Room representative listed on the Information Page.

5. **AMENDED PAGES:** If any of the amendments furnished amended pages, the amended pages must be used in submitting your offer.

6.. **MISTAKE IN OFFER:** Have you reviewed your offer price for possible errors in calculation or work left out?


7. **TELEGRAPHIC MODIFICATIONS:** The Seattle District does not have the capability of receiving commercial telegrams directly. Offerors who wish to modify their offer by telegram are urged to ensure that telegrams are submitted within enough time to arrive at the opening office prior to the time specified for receipt of proposals. Any doubt as to time should be resolved in favor of EXTRA TIME. Transmission by Fax to this office is NOT ACCEPTABLE.

8. **OFFER ACCEPTANCE PERIOD:** The minimum offer acceptance period is specified in block 13D of SF1442-1, Solicitation, Offer and Award. Please ensure that you allow at least the stated number of calendar days for the Government to accept your offer.

9. **CENTRAL CONTRACTOR REGISTRATION:** Per DFARS Clause 252.204-7004, REQUIRED CENTRAL CONTRACTOR REGISTRATION, in Section 00700, registration is required prior to award of any contract from a Solicitation issued after May 31, 1998. No Contract Award will be made to an unregistered contractor. Internet access allows contractors to register by completing an electronic on-line registration application from CCR homepage at <http://www.ccr.gov/>. For further assistance in completing your on-line registration, contact the nearest Procurement Technical Assistance Center (PTAC) near you. A list of the nearest PTAC is located at: <http://www.rcacwv.com/ptac.htm>.

10. **HUBZONE CERTIFICATION:** Per FAR Clause 52.219-4, NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999) in Section 00700. A HUBZone small business concern, as used in this clause, means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration Reference: <https://el.sba.gov:90000/prodhubzone/hubzone/approval.st>.

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SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NUMBER W912DW-04-R-0003	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 05 November 2003	PAGE OF PAGES 1
	IMPORTANT - The "offer" section on the reverse must be fully completed by the offeror.			
4. CONTRACT NUMBER	5. REQUISITION/PURCHASE REQUEST NUMBER W68MD9-3027-6329	6. PROJECT NUMBER		
7. ISSUED BY Seattle District, Corps of Engineers ATTN: CENWS-CT-CB-MU PO Box 3755 Seattle, WA 98124-3755	CODE W68MD9	8. ADDRESS OFFER TO Seattle District, Corps of Engineers PO Box 3755 ATTN: CENWS-CT-CB-MU Seattle, WA 98124-3755 HAND CARRY: Seattle District Corps of Engineers Contracting Division 4735 East Marginal Way South Seattle, WA 98134-2329		
9. FOR INFORMATION CALL 	A. NAME Sherrye Schmahl	B. TELEPHONE NUMBER (Include area code) (NO COLLECT CALLS) 206-764-6588		

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying number, date):

Furnish all labor, materials and equipment and perform all work for FY04 Whole Barracks Renewal, Fort Lewis, Washington in accordance with the attached Contract Clauses, Special Clauses, Technical Specifications and Drawings.

11. The Contractor shall begin performance within 10 calendar days and complete it within _____ calendar days after receiving

☐ award, ☒ notice to proceed. This performance period is ☒ mandatory, ☐ negotiable. (See * Paragraph SC-1, 00800 .)

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE PAYMENT BONDS?
(If "YES," indicate within how many calendar days after award in Item 12B.)

☒ YES ☐ NO

12B. CALENDAR DAYS

10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and _____ copies to perform the work required are due at the place specified in Item 8 by 2:00 p.m. (hour) local time 05 December 2003 (date). If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelope containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee ☒ is, ☐ is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 90 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

OFFER (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)

15. TELEPHONE NUMBER (Include area code)

Fax No.:

16. REMITTANCE ADDRESS (Include only if different than Item 14)

Tax ID No:
eMail:

DUNS No:

CODE

FACILITY CODE

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer accepted by the Government in writing within _____ calendar days after the date offers are due. (Insert any number equal or greater than the minimum requirement stated in 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)

AMOUNTS



See Page 00010-5

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGEMENT OF AMENDMENTS

(The offeror acknowledges receipt of amendments to the solicitation - give number and date of each)

AMENDMENT NO.

DATE

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)

20B. SIGNATURE

20C. OFFER DATE

AWARD (To be completed by Government)

21. ITEMS ACCEPTED

22. AMOUNT

23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES TO ADDRESS SHOWN IN
(4 copies unless otherwise specified)

ITEM

26

25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO

☐

10 U.S.C. 2304(c) ()

☐

41 U.S.C. 253(c) ()

26. ADMINISTERED BY

CODE

USACE - Seattle District
Northwest Area Office
PO Box 92146
Tillicum, WA 98492-0146

27. PAYMENT WILL BE MADE BY

US Army Corps of Engineers Finance Center
CEFC-AO-P
5722 Integrity Drive
Millington, TN 38054-500**CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE**☐ 28. NEGOTIATED AGREEMENT (Contractor is required to sign this

document and return _____ copies to the issuing office.) Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.

☐ 29. AWARD. (Contractor is not required to sign this document.) You

offer on this solicitation is hereby accepted as to the items listed. The award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN
(Type or print)

31A. NAME OF CONTRACTING OFFICER (Type or print)

30B. SIGNATURE

30C. DATE

31B. UNITED STATES OF AMERICA

31C. AWARD DATE

BY

IF THE CONTRACTOR IS A CORPORATION OR PARTNERSHIP, **THE APPLICABLE PORTION OF THE FORM LISTED BELOW MUST BE COMPLETED.** IN THE ALTERNATIVE, OTHER EVIDENCE MUST BE SUBMITTED TO SUBSTANTIATE THE AUTHORITY OF THE PERSON SIGNING THE CONTRACT. IF A CORPORATION, **THE SAME OFFICER SHALL NOT EXECUTE BOTH THE CONTRACT AND THE CERTIFICATE.**

CORPORATE CERTIFICATE

I, _____, certify that I am the _____
Secretary of the Corporation named as Contractor herein; that _____,
who signed this contract on behalf of the Contractor was then _____ of said
corporation; that said contract was duly signed for and on behalf of said corporation by authority of its
governing body and is within the scope of its corporate powers.

(Secretary) (CORPORATE SEAL)

AUTHORITY TO BIND PARTNERSHIP

This is to certify that the names, signatures and Social Security Numbers of all partners are listed below and that the person signing the contract has authority actually to bind the partnership pursuant to its partnership agreements. Each of the partners individually has full authority to enter into and execute contractual instruments on behalf of said partnership with the United States of America, except as follows: (state "none" or describe limitations, if any)

This authority shall remain in full force and effect until such time as the revocation of authority by any cause whatsoever has been furnished in writing to, and acknowledged by, the Contracting Officer.

(Names, Signatures and Social Security Numbers of all Partners)

NAME	SIGNATURE	SOCIAL SECURITY NO.
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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SCHEDULE

<u>Item No.</u>	<u>Description of Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Amount</u>
BASE ITEMS					
0001	All Work For the Complete Design of FY 04 Whole Barracks Renewal, Fort Lewis, WA	1	JOB	L.S.	\$_____
					—
0002	All Work to Construct the Barracks Buildings within a Line 1500 mm Outside the Building Walls	1	JOB	L.S.	\$_____
					—
0003	All Work to Construct the four (4) Lawnmower Storage Buildings within a line 1500 mm Outside the Building Walls	1	JOB	L.S.	\$_____
					—
0004	All Work to Construct the three (3) Company Operations Facilities within a line 1500 mm Outside the Building Walls	1	JOB	L.S.	\$_____
					—
0005	All Work to Construct the two (2) Battalion Headquarters Buildings within a line 1500 mm Outside the Building Walls	1	JOB	L.S.	\$_____
					—
0006	All Work for Sitework and Utilities Outside of the 1500 mm Lines	1	JOB	L.S.	\$_____
					—
0007	All Work for As-Built Drawings as specified in Section 01702 from preparation to final approval	1	JOB	L.S.	\$25,000.00
0008	All Work for O&M Manuals as specified in Section 01701 from preparation to final approval	1	JOB	L.S.	\$60,000.00
0009	All Work for Form 1354 Checklist and Equipment in Place List as specified in Sections 01704 and 01705 from preparation to final approval	1	JOB	L.S.	\$12,000.00
TOTAL BASE ITEMS					\$_____
					—
OPTIONAL ITEM					
0010	All Work to Construct Landmark Feature at Intersection of 41 st Division Drive and A Street.	1	JOB	L.S.	\$_____
					—
TOTAL BASE AND OPTIONAL ITEMS					\$_____
					—

NOTE: The dollar amounts established in Items No. 0007, 0008, and 0009 shall not be revised by bidders.

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

Contracting Division

REV Sep, 2003

SUBJECT: W912DW-04-R-0003, Whole Barracks Renewal, FY04, Fort Lewis, Washington

NOTICE TO LARGE BUSINESS FIRMS: (RFP)

Your attention is directed to the contract clauses entitled "Utilization of Small Business Concerns (Oct 2000) (52.219-8) and "Small Business Subcontracting Plan" (Jan 2002) (52.219-9II), which are included in this solicitation. If you are a large business, and your offer is \$500,000 (\$1,000,000 for construction) or more you are required to submit a subcontracting plan **with** your proposal. Award will not be made under this solicitation without a subcontracting plan approved by the Contracting Officer.

For your information, we consider the following goals reasonable and achievable during the performance of the contract resulting from this solicitation. However, final goals will be negotiated prior to contract award. The Subcontracting Plan will then become a material part of your contract.

- a. 65% of planned subcontracting dollars can be placed with all small business concerns.
- b. 10% of planned subcontracting dollars can be placed with those small business concerns owned and controlled by socially and economically disadvantaged individuals or Historically Black Colleges and Universities or Minority Institutions. NOTE: b. is a subset of a.
- c. 5% of planned subcontracting dollars for small women-owned businesses. NOTE: c. is a subset of a. Also, the women-owned business may meet the definition of a small disadvantaged business. If so, c. will also be a subset of a. (Count firm in all applicable areas.)
- d. 5% of planned subcontracting dollars may be placed with HUBZone small business concerns. NOTE: d. is a subset of a. Note: A HUBZone firm may also SDB, women-owned and/or veteran-owned. Count firm in all applicable areas).
- e. 3% of planned subcontracting dollars for veteran-owned small business. NOTE: e. is a subset of a. Go to <http://www.va.gov/osdbu/vetctr.htm> or <http://www.sba.gov/VETS/> for questions concerning the Veterans Business Development program.
- f. 3% of planned subcontracting dollars may be placed with service-disabled veteran-owned small business. NOTE: f. is a subset of a. and e.

Goals included in any proposed plan submitted by you should be at least equal to the ones we are recommending. If lesser goals are proposed, you will have to explain how those goals and your plan represent your best efforts to comply with the policy outlined in the contract clauses. There are a number of equally important aspects of the plan. You should familiarize yourself with the requirements set forth in the contract clauses relating to the subcontracting plan before submitting a proposal.

Your plan will be reviewed and scored in accordance with AFARS Appendix D to ensure it clearly represents your firm's ability to carry out the terms and conditions set forth in the contract clauses. A Subcontracting Plan with a score of less than 70 may not be accepted. It is recommended that you use the enclosed example as a guide to assist you in developing your own subcontracting plan/program. The example is intended to assist you in developing your own subcontracting plan/program. Delete the instructions shown in parenthesis or your plan for subcontracting to small business will not be approved. If discussions during the evaluation of your subcontracting program raises doubts as to your intentions or ability to comply with FAR clause 52.219-9 it could result in your ineligibility for award.

Your plan must address how you will maximize subcontracting opportunities with the small business communities to be found within the project location. Demonstrated outreach efforts through conference attendance, use of ProNet, Corporate support of your Small Business Program Liaison Officer and Small Business Program must be addressed in your subcontracting plan.

Your Small Business Program Managers' attendance at DOD Regional Council Meetings for Small Business Education and Advocacy will be a contract requirement. **DOD Policy Guidance:** In accordance with the Small Business Act, it is the policy of the federal government to aid, assist, and counsel small business to ensure that a fair share of contracts are awarded to small business. Consistent with this, it is the policy of DOD to sponsor regional councils as one significant way to aid, assist, and counsel large business through education and advocacy *of its members who are charged with the responsibility of fulfilling this federal policy*. Therefore, be advised that the individual listed in paragraph 7 of the example will be required to attend these regional council meetings and that attendance must be addressed in your subcontracting plan. Your plan must be submitted with your price proposal.

Should you have any questions or need assistance in DEVELOPING YOUR SUBCONTRACTING PLAN please call the undersigned at (206) 764-6807. If you need TECHNICAL ASSISTANCE call Sherrye Schmahl at (206) 766-6588.

Enclosure

Sincerely,

A handwritten signature in black ink, appearing to read "Susan C. Price".

Susan C. Price
Deputy for Small Business

NOTE: This is an example plan. You may use this example as a guide in developing your own small business program. Delete all the instructions (parenthesis), including this message, or your plan will be returned.

SMALL BUSINESS SUBCONTRACTING PLAN

DATE:

CONTRACTOR:

ADDRESS:

PHONE NO:

PROJECT TITLE:

SOLICITATION NO:

1. In accordance with the contract clauses at 52.219-8 and 52.219-9, (name of contractor) submits the following Subcontracting Plan for Small, Small Disadvantaged, and Women-owned Business Concerns.

2. Corresponding dollar values for percentages cited in para. 3 for the base period only:

- a. Total contract amount is \$ _____.
- b. Total dollars planned to be subcontracted (to all types of businesses): \$ _____.
- c. Total dollars planned to be subcontracted to small business concerns (including 2d, 2e, 2f, 2g, and 2h below):
\$ _____.
- d. Total dollars planned to be subcontracted to small disadvantaged business concerns: \$ _____.
- e. Total dollars planned to be subcontracted to small woman-owned business concerns: \$ _____.
- f. Total dollars planned to be subcontracted to HUBZone small business: \$ _____.
- g. Total dollars planned to be subcontracted to veteran-owned small business concerns \$ _____.
- h. Total dollars planned to be subcontracted to service-disabled veteran-owned small business concerns.
\$ _____.

3. The following percentage goals (expressed in terms of a percentage of total planned subcontracting dollars) are applicable to the contract awarded under the solicitation cited above.

a. Small Business Concerns (2c divided by 2b): _____% of total planned subcontracting dollars under this contract will go to subcontractors who are small business concerns including 3c through 3e.

b. Small Disadvantaged Business Concerns (2d divided by 2b): _____% of total planned subcontracting dollars under this contract will go to subcontractors who are small disadvantaged individuals. (**NOTE: SDB firms must be certified by SBA** and meet the definition under clause 52.219-8(c)(3)).

c. Small Woman-Owned Business Concerns (2e divided by 2b): _____% of total planned subcontracting dollars under this contract will go to subcontractors who are small woman-owned businesses

d. Small HUBZone Business Concerns (2f divided by 2b): _____% of total planned subcontracting dollars under this contract will go to subcontractors who are HUBZone small business contractors. (SEE the definition in contract clause 52.219-8(c) or use the internet: <http://www.sba.gov/hubzone/> for further information.)

e. Veteran-owned small business concerns (2g divided by 2b): _____% of total planned subcontracting dollars under this contract will go to subcontractors who are veteran-owned small business.

f. Service-disabled veteran-owned small business concerns (2h divided by 2b): _____% of total planned subcontracting dollars under this contract will go to subcontractors who are service-disabled veteran-owned small business.

4. The principal items or areas we will subcontract under this contract are:

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00010-8

a. Of the items or areas stated in 4; the following are planned to be subcontracted to Small Businesses (LIST THE NAME AND RESPONSIBILITY OF FIRM):

b. Of the items or areas stated in 4.a; the following are planned to be subcontracted to Small Disadvantaged Businesses (LIST THE NAME AND RESPONSIBILITY OF FIRM):

c. Of the items or areas stated in 4.a; the following are planned to be subcontracted to Small Women-Owned Businesses (LIST THE NAME AND RESPONSIBILITY OF FIRM):

d. Of the items or areas stated in 4.a; the following are planned to be subcontracted to HUBZone small business concerns (LIST THE NAME AND RESPONSIBILITY OF FIRM):

e. Of the items or areas stated in 4.a; the following are planned to be subcontracted to Veteran-owned Small Business concerns (LIST THE NAME AND RESPONSIBILITY OF FIRM):

f. Of the items or areas stated in 4.a; the following are planned to be subcontracted to Service-disabled veteran-owned small business concerns (LIST THE NAME AND RESPONSIBILITY OF FIRM):

****NOTE: SEE LAST PAGE IF THIS SOLICITATION HAS OPTION YEARS OR PERIODS (DELETE THIS STATEMENT FROM YOUR PLAN)****

5. Provide a description of the method your firm used to develop the subcontracting goals in paragraph 3:

6. Indirect costs were () were not () used in establishing subcontracting goals. **If indirect costs are included in your goals, furnish a description of the method used to determine the proportionate share of indirect costs to be incurred with (i) small business concerns (ii) small disadvantaged business concerns (iii) women-owned small business concerns (iv) HUBZone small business concerns (v) Veteran-owned small business concerns and (vi) Service-disabled veteran-owned concerns **

7. The following individual will administer (name of contractor) Subcontracting Program:

(NOTE TO OFFERORS: The individual named here will be expected to perform and manage your plan and contract clause 52.219-9). Site Construction project managers may not be acceptable as your small business advocate that manages your Corporate Small Business Program).

Name: _____ Job Title: _____
Address and Telephone Number: _____

This individual's specific duties with regard to the conduct of our firm's Subcontracting Plan will include, but will not be limited to, the following:

a. Developing and maintaining bidders lists of small business, HUBZone small business, small disadvantaged business and women-owned small business concerns using sources such as the Small Business Administration's ProNet (<http://pro-net.sba.gov/>) Washington State Office of Minority and Women-owned Business Enterprises (<http://www.wsdot.wa.gov/omwbe/>) Minority Business Development Agency, US Department of Commerce, Local Minority Business Development Centers, Economic Development Centers, and National Center for American Indian Enterprise Development.

b. Assuring the inclusion of small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns in all solicitations for products or services which they are capable of providing; and ensuring that all solicitations are structured to permit the maximum possible participation by small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns.

c. Establishing and maintaining records of all solicitations and subcontract awards to ensure that the members of the firm who review bidders proposals documents their reasons for selecting or not selecting a bid submitted by a small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns.

d. Preparing and submitting the Subcontracting Report for Individual Contracts (SF 294) and the Summary Subcontract Report (SF 295) in accordance with instructions provided, and coordinating and preparing for all compliance reviews by Federal agencies.

e. Attendance at DOD sponsored training programs in order to develop guidance and training to firm personnel on the policy of the federal government to aid, assist, and counsel small business under this and other government contracts.

f. Conducting or arranging for all other activities necessary to further the intent and attainment of the goals in the Plan to include motivational training of the firm's purchasing personnel, attendance at workshops, seminars and trade fairs conducted by or on behalf of small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns.

8. The following steps will be taken to ensure that small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns receive notice of and have an equitable opportunity to compete for intended awards of subcontracts and/or purchase orders for the products and/or services describe in paragraph 4 above:

a. Sources will be requested through SBA's ProNet system, business development organizations, minority and small business trade associations and at small, minority, veteran small business and women-owned small business procurement conferences; sources will be contacted; and bidding materials will be provided to all responding parties expressing an interest.

b. Internally, motivational training will be conducted to guide and encourage purchasing personnel; source lists and guides to small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns will be maintained and utilized by purchasing personnel while soliciting subcontracts and purchase orders; activities will be monitored to ensure sufficient time is allowed for interested bidders to prepare their proposals and to evaluate continuing compliance with the Subcontracting Plan.

9. [Name of contractor] agrees that the clause entitled "Utilization of Small Business Concerns" (Oct 2000) will be included in all subcontracts that offer further subcontracting opportunities. All subcontractors, except small business concerns, who receive subcontracts in excess of \$500,000 (\$1,000,000 in the case of construction) will be required to adopt a subcontracting plan that complies with the requirements of this clause. Such plans will be reviewed to assure that all minimum requirements of an acceptable subcontracting plan have been satisfied.

10. (Name of contractor) agrees to submit such periodic reports and cooperate in any studies or surveys as may be required by the Contracting agency or Small Business Administration in order to determine the extent of compliance by the offeror with the subcontracting plan and with the clause entitled "Utilization of Small Business Concerns" contained in the contract.

11. (Name of Contractor) agrees to maintain at least the following types of records to document compliance with the Subcontracting Plan:

a. The names of all organizations, agencies, and associations contacted for small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns,

veteran-owned small business concerns and service-disabled veteran-owned small business concerns along with records of attendance at conferences, seminars and trade fairs where additional sources were developed.

b. Source lists, guides, and other data identifying small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns.

c. Records on all subcontract solicitations resulting in an award of more than \$100,000 on a contract-by-contract basis, indicating (1) whether small business concerns were solicited, and if not, why not; (2) whether veteran-owned small business concerns were solicited, and if not, why not; (3) whether service-disabled veteran-owned small business concerns were solicited, and if not, why not; (4) whether HUBZone small business were solicited, and if not, why not; (5) whether small disadvantaged business concerns were solicited, and if not, why not; and (6) whether small women-owned business concerns were solicited, and if not, why not; and (7) reasons for the failure of solicited small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBzone small business concerns, small disadvantaged business concerns, and women-owned small business concerns to receive a subcontract award.

d. Records of all subcontract award data to include subcontractor's name and address, to be kept on a contract-by-contract basis.

e. Minutes of internal motivational and training meetings held for the guidance and encouragement of purchasing personnel, and records of all monitoring activities performed for compliance evaluation.

f. Copies of SF 294 and SF 295 showing date and place of filing and copies of all other reports or results of reviews conducted by the contracting agency or other interested agencies of the Federal government to monitor our compliance with this Subcontracting Plan.

12. (Name of Contractor) will submit a SF 295, Summary Subcontract Report, on Corps of Engineers projects only. The SF 295 shall be completed and distributed in accordance with the Corps of Engineers Supplemental Instructions. (Name of Contractor) will not report Corps of Engineers projects through any other Agency unless authorized by the Contracting Officer.

13. In closing, (Name of contractor) states that it will be the policy of (Name of contractor) to afford every practicable opportunity for small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns to participate in contracts awarded to (Name of contractor) by the Federal Government, to ensure that equitable opportunity is provided small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns to compete for award of subcontracts and purchase orders, and to diligently pursue the achievement of our goals of participation by small business concerns, small disadvantaged business concerns, women-owned small business concerns, HUBZone small business concerns, veteran-owned small business concerns and service-disabled veteran-owned small business concerns in the dollars available for subcontract/purchase order awards under this contract.

BY: _____

Signature and Title of CEO
Company Name

DATE: _____

NOTE: If this solicitation has options (or option periods) , the plan must contain separate goals for *each* option or option period (year). EXAMPLE:

	<u>Dollars</u>	<u>Percentage</u>
1. Optional Yr_____total:	\$_____	_____
2. Total to be subcontracted to all types of businesses:	\$_____	_____
a. Subcontracted to Small Business (including b, c, d, e, and f below):	\$_____	_____
b. Subcontracted to Small Disadvantaged Businesses:	\$_____	_____
c. Subcontracted to Women- Owned Small Businesses:	\$_____	_____
d. Subcontracted to HUBzone concerns	\$_____	_____
e. Subcontracted to Veteran-owned Small Business:	\$_____	_____
f. Subcontracted to Service-disabled Small Business	\$_____	_____
1. Optional Yr_____total:	\$_____	_____
2. Total to be subcontracted to all types of businesses:	\$_____	_____
a. Subcontracted to Small Business (including b, c, d, e, and f below):	\$_____	_____
b. Subcontracted to Small Disadvantaged Businesses:	\$_____	_____
c. Subcontracted to Women- Owned Small Businesses:	\$_____	_____
d. Subcontracted to HUBzone concerns	\$_____	_____
e. Subcontracted to Veteran-owned Small Business:	\$_____	_____
f. Subcontracted to Service-disabled Small Business	\$_____	_____

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Section 00100 - Bidding Schedule/Instructions to Bidders

52.204-6	Data Universal Numbering System (DUNS) Number	OCT 2003
52.214-34	Submission Of Offers In The English Language	APR 1991
52.214-5000	Apparent Clerical Mistakes	MAY 1999
52.215-1	Instructions to Offerors--Competitive Acquisition	MAY 2001
52.216-1	Type Of Contract	APR 1984
52.217-5	Evaluation Of Options	JUL 1990
52.225-10	Notice of Buy American Act Requirement--Construction Materials	MAY 2002
52.228-1	Bid Guarantee	SEP 1996
52.228-4001	Information Regarding Performance and Payment Bonds (FAR FEB 2001 28.102)	
52.228-4003	Individual Sureties	DEC 1999
52.232-38	Submission of Electronic Funds Transfer Information with Offer	MAY 1999
52.233-2	Service Of Protest	AUG 1996
52.236-28	Preparation of Proposals --Construction	OCT 1997

CLAUSES INCORPORATED BY FULL TEXT

52.204-6 DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (OCT 2003)

(a) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" or "DUNS+4" followed by the DUNS number or "DUNS+4" that identifies the offeror's name and address exactly as stated in the offer. The DUNS number is a nine-digit number assigned by Dun and Bradstreet, Inc. The DUNS+4 is the DUNS number plus a 4-character suffix that may be assigned at the discretion of the offeror to establish additional CCR records for identifying alternative Electronic Funds Transfer (EFT) accounts (see Subpart 32.11) for the same parent concern.

(b) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one.

(1) An offeror may obtain a DUNS number--

(i) If located within the United States, by calling Dun and Bradstreet at 1-866-705-5711 or via the Internet at <http://www.dnb.com>; or

(ii) If located outside the United States, by contacting the local Dun and Bradstreet office.

(2) The offeror should be prepared to provide the following information:

(i) Company legal business name.

(ii) Tradestyle, doing business, or other name by which your entity is commonly recognized.

(iii) Company physical street address, city, state and Zip Code.

- (iv) Company mailing address, city, state and Zip Code (if separate from physical).
 - (v) Company telephone number.
 - (vi) Date the company was started.
 - (vii) Number of employees at your location.
 - (viii) Chief executive officer/key manager.
 - (ix) Line of business (industry).
 - (x) Company Headquarters name and address (reporting relationship within your entity).
- (End of provision)

52.214-34 SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE (APR 1991)

Offers submitted in response to this solicitation shall be in the English language. Offers received in other than English shall be rejected.

(End of provision)

52.214-5000 APPARENT CLERICAL MISTAKES (MAR 1995)--EFARS

(a) For the purpose of initial evaluations of bids, the following will be utilized in the resolving arithmetic discrepancies found on the face of bidding schedule as submitted by the bidder:

- (1) Obviously misplaced decimal points will be corrected;
- (2) Discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected;
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the government will proceed on the assumption that the bidder intends his bid to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

(End of statement)

52.215-1 INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (MAY 2001)

(a) Definitions. As used in this provision--

“Discussions” are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.

“In writing or written” means any worded or numbered expression which can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.

“Proposal modification” is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.

“Proposal revision” is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.

“Time”, if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

(b) Amendments to solicitations. If this solicitation is amended, all terms and conditions that are not amended remain unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).

(c) Submission, modification, revision, and withdrawal of proposals. (1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages (i) addressed to the office specified in the solicitation, and (ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror. Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.

(2) The first page of the proposal must show--

(i) The solicitation number;

(ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);

(iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;

(iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and

(v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(3) Submission, modification, or revision, of proposals.

(i) Offerors are responsible for submitting proposals, and any modifications, or revisions, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that proposal or revision is due.

(ii)(A) Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is “late” and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

(1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(3) It is the only proposal received.

(B) However, a late modification of an otherwise successful proposal that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(iii) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(iv) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative, if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

(4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.

(5) Offerors shall submit proposals in response to this solicitation in English, unless otherwise permitted by the solicitation, and in U.S. dollars, unless the provision at FAR 52.225-17, Evaluation of Foreign Currency Offers, is included in the solicitation.

(6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in response to an amendment, or to correct a mistake at any time before award.

(7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.

(8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

(d) Offer expiration date. Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).

(e) Restriction on disclosure and use of data. Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall--

(1) Mark the title page with the following legend: This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of--or in connection with-- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained

in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend: Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

(f) Contract award. (1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.

(2) The Government may reject any or all proposals if such action is in the Government's interest.

(3) The Government may waive informalities and minor irregularities in proposals received.

(4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

(5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.

(6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.

(7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.

(8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.

(9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.

(10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.

(11) The Government may disclose the following information in postaward debriefings to other offerors:

(i) The overall evaluated cost or price and technical rating of the successful offeror;

(ii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection;

(iii) A summary of the rationale for award; and

(iv) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

(End of provision)

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a **Firm-Fixed Price** contract resulting from this solicitation.

(End of clause)

52.217-5 EVALUATION OF OPTIONS (JUL 1990)

(a) Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

(b) The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(End of provision)

52.225-10 NOTICE OF BUY AMERICAN ACT REQUIREMENT--CONSTRUCTION MATERIALS (MAY 2002)

(a) Definitions. Construction material, domestic construction material, and foreign construction material, as used in this provision, are defined in the clause of this solicitation entitled "Buy American Act --Construction Materials" (Federal Acquisition Regulation (FAR) clause 52.225-9).

(b) Requests for determinations of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American Act should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of the clause at FAR 52.225-9 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) Evaluation of offers. (1) The Government will evaluate an offer requesting exception to the requirements of the Buy American Act, based on claimed unreasonable cost of domestic construction material, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(3)(i) of the clause at FAR 52.225-9.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) Alternate offers.

(1) When an offer includes foreign construction material not listed by the Government in this solicitation in paragraph (b)(2) of the clause at FAR 52.225-9, the offeror also may submit an alternate offer based on use of equivalent domestic construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of the clause at FAR 52.225-9 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of the clause at FAR 52.225-9 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic construction material, and the offeror shall be required to furnish such domestic construction material. An offer based on use of the foreign construction material for which an exception was requested--

(i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or

(ii) May be accepted if revised during negotiations.

(End of provision)

52.228-1 BID GUARANTEE (SEP 1996)

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The bidder shall furnish a bid guarantee in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.-

(c) The amount of the bid guarantee shall be **twenty (20)** percent of the bid price or **\$3,000,000**, whichever is less.-

(d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.-

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

(End of clause)

INFORMATION REGARDING PERFORMANCE AND PAYMENT BONDS (FAR 28.102) (52.228-4001) FEB 2001

Within 10 days after the prescribed forms are presented to the bidder to whom award is made, unless a shorter time is prescribed in the contract, two bonds, namely a performance bond (Standard Form 25) and a payment bond (Standard Form 25A), shall be executed and furnished to the Government, each with good and sufficient surety or sureties acceptable to the Government. The penal sums of such bonds shall be as follows:

(1) Performance Bond. The penal sum of the performance bond shall equal one hundred percent (100%) of the contract price.

(2) Payment Bond. The penal sum of the payment bond shall equal one hundred percent (100%) of the contract price.

Any bonds furnished must be furnished by the Contractor to the Government prior to commencement of contract performance.

INDIVIDUAL SURETIES (52.228-4003) DEC 1999

As prescribed in FAR 28.203, individual sureties are acceptable for all types of bonds except position schedule bonds.

One individual surety is adequate support for a bond, provided the unencumbered value of the assets pledged by that individual surety equal or exceed the amount of the bond. An offeror may submit up to three individual sureties for each bond, in which case the pledged assets, when combined, must equal or exceed the penal amount of the bond. Each individual surety must accept both joint and several liability to the extent of the penal amount of the bond.

An individual surety may be accepted only if a security interest in acceptable assets is provided to the Government by the individual surety. **THE SECURITY INTEREST SHALL BE FURNISHED WITH THE BOND.**

Acceptable assets include:

- (a) Cash, or certificates of deposit, or other cash equivalents with a federally insured financial institution;
- (b) United States Government securities at market value.
- (c) Stocks and bonds actively traded on a national U.S. security exchange with certificates issued in the name of the individual surety. (See FAR 28.203-2(b)(3) for list of acceptable exchanges).

(d) Real property owned in fee simple by the surety without any form of concurrent ownership, except as provided in FAR 28.203-2(c) (3)(iii), and located within the 50 United States, its territories, or possessions. These assets will be accepted at 100% of the most current tax assessment value (exclusive of encumbrances) or 75% of the properties' unencumbered market value provided a current appraisal is furnished. (See clause entitled "Pledges of Assets").

(e) Irrevocable letters of credit (ILC) issued by a federally insured financial institution in the name of the contracting agency and which identify the agency and solicitation or contract number for which the ILC is provided.

Unacceptable assets include but are not limited to:

- (a) Notes or accounts receivable;
- (b) Foreign securities;
- (c) Real property as follows:
 - (1) Real property located outside the United States, its territories, or possessions.
 - (2) Real property which is a principal residence of the surety.
 - (3) Real property owned concurrently regardless of the form of co-tenancy (including joint tenancy, tenancy by the entirety, and tenancy in common) except where all co-tenants agree to act jointly.
 - (4) Life estates, leasehold estates, or future interests in real property.
- (d) Personal property other than that listed as acceptable assets above (e.g., jewelry, furs, antiques);
- (e) Stocks and bonds of the individual surety in a controlled, affiliated, or closely held concern of the offeror/contractor;
- (f) corporate assets (e.g., plant and equipment);
- (g) Speculative assets (e.g., mineral rights);
- (h) Letters of credit, except as provided above.

In order for the Contracting Officer to determine the acceptability of individuals proposed as sureties, all bidders/offerors who submit bonds which are executed by individual sureties shall furnish with the bonds:

- (a) SF28, Affidavit of Individual Surety,
 - (b) Security interest provided to the Government for all pledged assets (See clause entitled "Pledge of Assets")
- and

(c) A current list of all other bonds (including Bid Bonds) on which each individual surety is a surety and bonds for which the individual is requesting to be a surety, together with a statement as to the percent of completion of these bonded jobs. The list will include Contract or Solicitation Numbers, the name, address and telephone number of the contracting office, the type of bond (bid, performance or payment), and the amount of each original obligation. (Note: Performance and Payment bonds must be listed separately.)

Failure to furnish this information may result in non-approval of the surety and a determination of nonresponsibility.

52.232-38 SUBMISSION OF ELECTRONIC FUNDS TRANSFER INFORMATION WITH OFFER (MAY 1999)

The offeror shall provide, with its offer, the following information that is required to make payment by electronic funds transfer (EFT) under any contract that results from this solicitation. This submission satisfies the requirement to provide EFT information under paragraphs (b)(1) and (j) of the clause at 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration.

- (1) The solicitation number (or other procurement identification number).
- (2) The offeror's name and remittance address, as stated in the offer.
- (3) The signature (manual or electronic, as appropriate), title, and telephone number of the offeror's official authorized to provide this information.
- (4) The name, address, and 9-digit Routing Transit Number of the offeror's financial agent.
- (5) The offeror's account number and the type of account (checking, savings, or lockbox).
- (6) If applicable, the Fedwire Transfer System telegraphic abbreviation of the offeror's financial agent.
- (7) If applicable, the offeror shall also provide the name, address, telegraphic abbreviation, and 9-digit Routing Transit Number of the correspondent financial institution receiving the wire transfer payment if the offeror's financial agent is not directly on-line to the Fedwire and, therefore, not the receiver of the wire transfer payment.

(End of provision)

52.233-2 SERVICE OF PROTEST (AUG 1996)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from **Cheryl A. Anderson, Contracting Division, Post Office Box 3755, Seattle, WA 98124-3755.**

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

52.236-28 PREPARATION OF PROPOSALS--CONSTRUCTION (OCT 1997)

(a) Proposals must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2)

manually signed. The person signing a proposal must initial each erasure or change appearing on any proposal form.

(b) The proposal form may require offerors to submit proposed prices for one or more items on various bases, including--

(1) Lump sum price;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of paragraphs (b)(1) through (b)(3) of this provision.

(c) If the solicitation requires submission of a proposal on all items, failure to do so may result in the proposal being rejected without further consideration. If a proposal on all items is not required, offerors should insert the words "no proposal" in the space provided for any item on which no price is submitted.

(d) Alternate proposals will not be considered unless this solicitation authorizes their submission.

(End of provision)

SECTION 00110 INSTRUCTIONS, CONDITIONS, AND NOTICES TO FIRMS

1. INTRODUCTION

The U.S. Army Corps of Engineers, Seattle District, is conducting a two-phase procurement in accordance with Request for Proposals (RFP) No. W912DW-04-R-0003 entitled "FY 04 Whole Barracks Renewal, Fort Lewis, WA." This solicitation will be conducted in accordance with procedures outlined in Federal Acquisition Regulations (FAR) Part 36.3 entitled "Two-Phase Design-Build Selection Procedures." There will be a Phase One (submission of qualifications and experience) and a Phase Two (submission of technical and price proposals). Those firms that wish to be considered may provide submittals in accordance with this section of the solicitation. The phase one submittals will be evaluated and the Contracting Officer will select up to **five** of the most highly qualified offerors based on demonstrated experience, qualifications, past performance. Phase Two will require the firms selected in Phase One to submit technical and price proposals, which will be evaluated in accordance with FAR Part 15 and this section of the solicitation. One firm-fixed price contract will be awarded as a result of the Phase Two evaluation.

1.2 Project Description

Design and construct a new 300-person barracks complex with barracks, three large two-story duplex company operations facilities, and two large two-story battalion headquarters with classrooms and associated site improvements and infrastructure at Fort Lewis, WA. Supporting facilities include, but are not limited to, utilities; electric service; security and street lighting; fire protection and alarm systems; paving, walks, curbs and gutters; storm and sanitary sewers; landscaping; intrusion detection systems (IDS) for arms vaults, information systems; and site improvements. Access for the disabled will be provided. Heating will be provided by self-contained gas-fired systems with dual fuel capability. Anti-terrorism/force protection (AT/FP) is required in accordance with referenced standards. Comprehensive building and furnishings related interior design services are required.

PHASE ONE - SUBMISSION OF QUALIFICATIONS AND EXPERIENCE

1. PHASE 1 EVALUATION FACTORS: Offerors shall be evaluated for the following criteria, listed in descending order of importance:

1. Offeror Relevant Experience

1.a Experience of the firms proposed for the design-build team with similar projects (e.g., projects on military installations, projects with fast-track creative phasing, sustainably designed and constructed projects, apartment or dormitory and administrative/office buildings).

1.b Experience of the design-build team proposed for this project working together, as a team, on projects (design-build or non-design-build).

2. Qualifications of proposed team members (e.g., education, experience, professional registration, etc.)

3. Offeror Past performance, including customer satisfaction, quality, & timely performance.

2. RELATIVE IMPORTANCE DEFINITIONS: For Phase One, the following term will be used to establish the relative importance of the criteria and sub-criteria:

- **More Important** The criterion is two (2) times more important in value to the Government than other criterion.
- **Equal:** The criterion is of the same value to the Government as another criterion.

3. SUMMARY OF ORDER OF IMPORTANCE: A summary of the order of importance for the Phase-One criteria is as follows:

- Criterion 1 is more important than criterion 2.
- Criterion 2 is equal to criterion 3.

4. TECHNICAL MERIT RATINGS:

OUTSTANDING - Information submitted demonstrates offeror's potential to significantly exceed performance or capability standards. The offeror has clearly demonstrated an understanding of all aspects of the requirements to the extent that timely and the highest quality performance are anticipated. Has exceptional strengths that will significantly benefit the Government. The offeror convincingly demonstrated that the RFP requirements have been analyzed, evaluated, and synthesized into approaches, plans, and techniques that, when implemented, should result in outstanding, effective, efficient, and economical performance under the contract. Significantly exceeds most or all solicitation requirements. **VERY HIGH PROBABILITY OF SUCCESS.**

ABOVE AVERAGE - Information submitted demonstrates offeror's potential to exceed performance or capability standards. Has one or more strengths that will benefit the Government. The areas in which the offeror exceeds the requirements are anticipated to result in a high level of efficiency or productivity or quality. The submittal contains excellent features that will likely produce results very beneficial to the Government. Fully meets all RFP requirements and significantly exceeds many of the RFP requirements. Disadvantages are minimal. **HIGH PROBABILITY OF SUCCESS.**

SATISFACTORY (Neutral) - Information submitted demonstrates offeror's potential to meet performance or capability standards. An acceptable solution is provided. Either meets all RFP requirements for the criterion or contains weaknesses in some areas that are offset by strengths in other areas. A rating of "Satisfactory" indicates that, in terms of the specific criterion (or sub-criterion), the offeror has a reasonable probability of success, as there is sufficient confidence that a fully compliant level of performance will be achieved. The proposal demonstrates an adequate understanding of the scope and depth of the RFP requirements. No significant advantages or disadvantages. Equates to neutral. **REASONABLE PROBABILITY OF SUCCESS.**

MARGINAL – The submittal is not adequately responsive or does not address the specific criterion. The offeror's interpretation of the Government's requirements is so superficial, incomplete, vague, incompatible, incomprehensible, or incorrect as to be considered deficient. Proposal does not meet some of the minimum requirements. The assignment of a rating within the bounds of "Marginal" indicates that mandatory corrective action would be required to prevent significant deficiencies from affecting the overall project. The offeror's plans or approach will likely result in questionable quality of performance, which represents a moderate level of risk to the Government. Low probability of success although the submittal has a reasonable chance of becoming at least acceptable. Significant disadvantages. **LOW PROBABILITY OF SUCCESS.**

UNSATISFACTORY – Fails to meet performance or capability standards. Unacceptable. Requirements can only be met with major changes to the submittal. There is no reasonable expectation that acceptable performance would be achieved. The proposal contains many deficiencies and/or gross omissions; fails to provide a reasonable, logical approach to fulfilling much of the Government's requirements; and/or fails to meet most or all of the minimum requirements. Very significant disadvantages. **VERY LOW PROBABILITY OF SUCCESS.**

5. Definitions of Strength, Weakness, and Deficiency:

Strength: A substantive aspect, attribute, or specific item in the proposal that exceeds the solicitation requirements and enhances the probability of successful contract performance.

Weakness: A flaw in the proposal that increases the risk of unsuccessful contract performance (i.e., meets the RFP requirements, but may have an impact on

schedule or quality requirements). A ***weakness need not be corrected*** for a proposal to be considered for award, but ***may*** affect the offeror's rating.

Deficiency: A material failure of a proposal to meet the Government requirement or a combination of significant weaknesses in a proposal that increases the risk of contract performance at an unacceptable level. A deficiency ***must be corrected*** for a proposal to be considered for award.

6. Submittal Requirements for Phase One:

6.1 General Submittal Requirements for Phase One.

Offerors must submit information for the above criteria in sufficient detail to permit proper evaluation. Submittals must be in a format that follows the sequence of criteria set forth in the paragraphs above. Absence of information will be deemed as if no support for that criterion is available. Submittals should be on 8½ x 11-inch paper, to the maximum extent practicable, and submitted in standard letter-size, loose-leaf binders. Contents of binders should be tabbed and labeled with a table of contents for easy identification, with all pages numbered sequentially. No material should be incorporated by reference. Any such material will not be considered for evaluation.

Submittals are not to exceed a total of 45 pages. Photographs and organizational charts will not be considered a page. However, a photograph with more than 6 lines of text (for caption purposes) counts as one page. Double-sided pages count as two pages. Excessive proposals may be construed as an indication of the offeror's lack of cost-consciousness and risk not being evaluated.

6.2 Specific Submittal Requirements for Phase One

6.2.1 Relevant Experience

6.2.1.1. Relevant experience of the firms proposed for the design-build team with similar projects (e.g., projects on military installations, projects with fast-track creative phasing, sustainably designed and constructed projects, hotel or dormitory and administrative/office buildings).

Submittal Requirements:

Provide a list of specific projects including projects for **both** the construction and the design firms that are either currently under construction or were completed within the last five (5) years. A minimum of three projects each shall be listed for both the construction firm and the design firm. List no more than a total of 10 projects for this criterion. Start with the most recent and relevant projects and work backwards in time.

Using a format similar to that shown below, provide specific information on the projects listed for **both** the construction and the design firms.

Specialized Experience

Project Title & Location
Project Type (e.g., design-build (DB), design (D), construction (C))
Dollar Value (design \$; construction \$)
Start & Completion Dates (Month/Year)
Role of Firm(s) (e.g., prime, sub) (address type of work performed and percentage of work, as applicable)
Brief Description of Project (address how this relates to solicitation project)
Sustainable Design Features/LEED Certification of Project
Customer Point of Contact (i.e., name, relationship to project, agency/firm affiliation, city, state, current phone no.)
Awards or recognition received (if applicable)

6.2.1.2. Relevant experience of the design-build team proposed for this project working together, as a team, on projects (design-build or non-design-build).

Submittal Requirements:

Provide a narrative describing the team's experience working together on design-build projects. This narrative should not exceed two (2) pages.

Using the format similar to that shown above in 6.2.1.1, provide specific information on no more than five (5) design-build projects or, if applicable, (5) non-design-build projects, either currently under construction or completed within the last 5 years, on which the team members (firms and/or individuals) have worked together as a team. Start with the most recent and relevant projects and work backwards in time.

Provide an **OVERALL SUMMARY MATRIX (GRAPH)** that is structured to show projects on which the team members have worked together.

6.2.1.3 Evaluation Method for 6.2.1.1 and 6.2.1.2

This criterion will be evaluated for the quantity and quality of experience demonstrated. The greater the relevance and recency of prior project experience, the higher the rating assigned for the experience during evaluations. Design-build projects will be considered more relevant than non-design-build projects. Demonstration of experience in completing projects that had the unique characteristics of the proposed project will be evaluated favorably. Projects involving design/build, Leadership in Energy and Environmental Design (LEED) certification from the US Green Building Council, and attributes similar to those specified in paragraph 1.2 of this section may be given more consideration. Design-build experience working together as a team will be considered more relevant than non-design-build experience working together. **NOTE:** For purposes of this solicitation, a **DESIGN-BUILD** project is defined as a project where the successful contractor is responsible for the design and construction of a complete and usable facility in accordance with the requirements of the request for proposals.

SUSTAINABLE DESIGN is defined as using an integrated design approach and emphasizing environmental stewardship, especially energy and water conservation and efficiency, use of recovered and recycled materials, waste reduction, reduction or elimination of toxic and harmful substances in facilities construction and operation, efficiency in resource and materials utilization, and development of healthy, safe and productive work environments.

6.2.2 Qualifications of proposed team members (e.g., education, experience, professional registration, etc.) It is expected that the team presented in Phase One will be exactly the same as proposed in Phase Two and that the team will perform on the project. If any change is provided in the Phase Two proposal, the offeror shall demonstrate how any new individuals or firms are as qualified for this project as those submitted with Phase One of this procurement.

Submittal Requirements:

Provide the qualifications of the KEY individual team members (**both** construction and design) proposed for this project in the form of resumes. As a minimum, provide resumes for the construction firm's project manager, project on-site superintendent, the design firm's project manager (if applicable), lead architect and lead design engineers (specifically mechanical, electrical, civil, structural, fire protection and communications engineers, landscape architect, and LEED accredited professional). Individual's qualifications will be measured against the following criteria:

Construction Project Manager: The construction project manager shall have a baccalaureate degree in engineering, architecture or construction management with a minimum of 7 years experience managing construction projects and having managed a minimum of 2 projects that demonstrates the ability to manage construction projects similar in scope, cost and complexity to the project in this solicitation **or** a person in the construction field with a minimum of 10 years managing construction projects and having managed a minimum of 2 projects of the same scope, cost and complexity to the project in this solicitation.

Project Superintendent: The Project Superintendent shall have no less than 7 years of experience as a project superintendent on construction projects of similar scope, cost and complexity. The experience must demonstrate construction knowledge, the ability to manage large subcontracting teams, complex projects, and multiple buildings, and be consistent with the type of construction required in this solicitation.

Design Project Manager (if applicable): The design project manager shall have a baccalaureate degree in engineering, architecture or construction management with a minimum of 7 years project management experience and having managed at minimum of 3 projects that demonstrates the ability to manage projects similar in scope, cost and complexity to the project in this solicitation **or** a person in the design field with a minimum of 10 years project

management experience and having managed at least 3 projects of the similar scope, cost and complexity to the project in this solicitation.

Design team members (lead architect, mechanical, electrical, civil, structural, fire protection and communications engineers, landscape architect, and LEED accredited professional): Lead design team members shall have a baccalaureate degree in architecture, engineering or similar construction profession and shall be licensed professionals with a minimum of 5 years as senior or lead designers. In addition each individual shall have worked on at least 3 projects of similar scope, cost and complexity to the project in this solicitation. The LEED accredited professional shall have achieved LEED certification from the U.S. Green Building Council for a least 1 building project.

Resumes should be no more than two (2) pages per individual and submitted in a format similar to the one shown below.

Personnel Qualifications/Experience

Name/Title
Proposed Duties/Functions (for this project)
Firm Affiliation/Years Affiliated
Years of Experience (performing duties/functions as proposed for this project)
Education (Degree, Year, Specialization)
Active Registrations (and/or Professional/Technical Licenses/Certifications)
Specific Qualifications (for this project, if any)
List of Relevant Projects Including:
Project Title & Location
Project Type (e.g., design-build (DB), design (D), construction (C))
Dollar Value (design \$; construction \$)
Start & Completion Dates (Month/Year)
Duties/Functions (address how this relates to role for solicitation project)
Brief Description of Project (address how this relates to solicitation project)
Sustainable Design/LEED Certification status
Customer Point of Contact (i.e., name, relationship to project, agency/firm affiliation, city, state, current phone no.)
Awards or recognition received (if applicable)

6.2.2.1 Evaluation Method

The more recent and the greater the relevancy of the team members' qualifications and prior project experience, the higher the value assigned for this criterion during evaluations. In addition, qualifications of key personnel that demonstrate experience

and training in sustainable design and/or construction will be considered favorably. The more recent, and the greater the extent and relevance, of the team members' qualifications, prior project experience, and active registrations, the higher the rating assigned for this criterion during evaluations. Only one individual for each of the key personnel categories listed above will be evaluated.

6.2.3 Past performance of the Prime

Submittal Requirements:

Past performance of the prime contractor will be evaluated using the Construction Contractor Administrative Support System (CCASS) database and customer satisfaction surveys. All performance ratings in CCASS for the past 5 years shall be considered. All private industry construction projects submitted on a customer satisfaction survey must have been completed within the last 5 years. Further instructions are found at the top of the customer satisfaction survey. Only relevant projects (of similar scope, cost and complexity as this solicitation) should be included on the surveys. If an offeror does not have past performance available in CCASS, the customer satisfaction surveys will be used exclusively.

Should the offerors want to review the CCASS ratings contained in the Corps of Engineers CCASS Database, they may request the information by fax on company letterhead at the following telefax number: (503) 808-4596.

The Government reserves the right to contact the evaluator on previous government or private sector work to verify the offeror's construction experience.

A reproducible customer satisfaction survey form is provided at the end of the Phase-One portion of Section 00110. Offerors shall forward these forms to customers to be completed and returned to Seattle District Contracting Division. To be considered, the surveys must be completed by the customers and mailed, emailed, hand-delivered, or faxed **directly by the customer to the Seattle District Contracting Division** for receipt no later than the time and date the Phase I submittals are due.

Surveys submitted directly by offerors will not be considered. Please ensure envelopes containing surveys submitted to this office do not contain the offeror's return address.

AS A MINIMUM, THREE (3) CUSTOMER SATISFACTION SURVEYS MUST BE RECEIVED FOR THE PRIME FIRM (i.e., the firm signing the Standard Form 1442, Solicitation, Offer and Award).

Offerors shall submit a list of all customers (including current Point of Contact and phone number) that were sent Customer Satisfaction Surveys.

6.2.3.1 Evaluation Method. The Government will evaluate the relative merits of each offeror's past performance. The Government reserves the right to consider all aspects of an offeror's performance history but will first evaluate the performance of those projects listed in 6.2.1. Projects involving design/build, LEED certification from the US

Green Building Council, and attributes similar to those specified in paragraph 1.2 of this section may be given more consideration. The Government reserves the right to contact the evaluators on previous Government or Private Sector work to verify the offeror's construction experience. In the case of an offeror without a record of past performance or for whom information on past performance is not available, the offeror **may not be evaluated as favorable or unfavorable** on past performance (See FAR 15.305(a)(2)(iv)).

6.2.4 PROVIDE THE FOLLOWING ADDITIONAL INFORMATION WITH THE SUBMITTALS FOR PHASE ONE:

a. An information page containing the solicitation number, and complete name, address, telephone number, fax number, e-mail address and points of contact for each firm proposed as a team member.

b. The name, point of contact, phone number, and address for the bank and the bonding company of the firm signing the SF 1442. Financial capacity will be checked, but not rated.

6.3 ONE ORIGINAL AND FIVE (5) COPIES OF SUBMITTALS ARE REQUIRED, in the format specified above, to reach the Seattle District Corps of Engineers Contracting Division Office no later than **2:00 PM, Pacific Time, on 5 December 2003**. The office is located at 4735 E. Marginal Way S., Seattle, WA 98134-2385. Submittals may be mailed to:

U.S. Army, Corps of Engineers, Seattle District
CENWS-CT-CB-MU, ATTN: Sherrye Schmahl
P.O. Box 3755, Seattle WA 98124-3755
(206) 764-6806

7. SELECTION OF FIRMS: Based on the assessment of the Phase-One evaluation, the Contracting Officer will select the most highly qualified offerors, but not more than five (5) firms, that will be requested in writing to submit Phase Two proposals. It is anticipated that firms will be notified as to whether or not they are selected on or about **23 December 2003**. **No public notice stating the names of the selected firms will be published.**

8. NOTIFICATION TO FIRMS NOT SELECTED AND DEBRIEFINGS: Offerors who are not selected will be notified in writing. These offerors may request debriefing by submitting a written request to the Contracting Office within three (3) days after receipt of the notice of exclusion from the selected list.

END OF PHASE ONE

SEE CUSTOMER SATISFACTION SURVEY ON THE FOLLOWING PAGE

CUSTOMER SATISFACTION SURVEY (PAGE 1 OF 2)

W912DW-04-R-0003, Design-Build: FY04 Whole Barracks Renewal, Fort Lewis, WA

SECTION 1 -- TO BE COMPLETED BY THE OFFEROR AND PROVIDED TO THE CUSTOMER REFERENCE

Name of Firm Being Evaluated: _____

Project Title & Location: _____

Project Dollar Value (for design-build, list both design and construction amounts): _____

Year Completed: _____ **Project Manager:** _____

SECTION 2 -- TO BE COMPLETED BY THE CUSTOMER REFERENCE AND MAILED, HAND-DELIVERED OR FAXED DIRECTLY TO: Forms submitted by other than the customer (i.e., by the offeror), will not be considered.

U.S. Army Corps of Engineers, Seattle District
Attn: CENWS-CT-CB-MU (Sherrye Schmal)
P.O. Box 3755
Seattle, WA 98124-3755

FAX: (206) 764-6817
Street Address:
4735 E. Marginal Way S.
Seattle WA 98134-2385

OVERVIEW: The firm shown above has submitted a proposal on a Seattle District Corps of Engineers project and provided your name as a customer reference. Part of our evaluation process requires information on the firm's past performance. Your input is important to us and responses are required by 2:00 PM Pacific Time on 5 December 2003 for inclusion in this evaluation. Your assistance is greatly appreciated.

In blocks below, please indicate your overall level of satisfaction with work performed by firm shown in Section 1. Mark *Not Applicable* (N/A) for any areas that do not apply. Provide comments on page 2.

	On this project, the firm:	Satisfaction					
		Low	High			N/A	
1.	Kept You Informed & Treated You as Important Member of the Team	1	2	3	4	5	N/A
2.	Displayed Flexibility in Responding to Your Needs	1	2	3	4	5	N/A
3.	Displayed Initiative in Problem Solving	1	2	3	4	5	N/A
4.	Resolved Your Concerns	1	2	3	4	5	N/A
5.	Completed Your Major Project Milestones on Time	1	2	3	4	5	N/A
6.	Managed the Project Effectively (including adequate Cost Controls)	1	2	3	4	5	N/A
7.	Managed their Work Force Effectively (including Subcontractors)	1	2	3	4	5	N/A
8.	Effectiveness of Quality Control Program	1	2	3	4	5	N/A
9.	Provided Warranty Support	1	2	3	4	5	N/A
10.	Maintained Operational Continuity at Existing Facility During Project	1	2	3	4	5	N/A
11.	Minimized Adverse Construction Impacts on Ongoing Operations	1	2	3	4	5	N/A

CUSTOMER SATISFACTION SURVEY (PAGE 2 OF 2)						
W912DW-04-R-0003, Design-Build: FY04 Whole Barracks Renewal, Fort Lewis, WA						
12.	Your OVERALL Level of Customer Satisfaction	1	2	3	4	5 N/A
13.	Was the project a design-build project? (A design-build project is defined as a project where the successful contractor is responsible for the design and construction of a complete and usable facility.) (If "yes", the firm was responsible for _____% of the design.)	Yes.....No.....N/A				
14.	If design-build, effectiveness of communication between design and construction.	1	2	3	4	5 N/A
15.	Was the team offered in the proposal the same team that worked on the project? (If no, please describe below.)	Yes.....No.....N/A				
16.	Was payment withheld or liquidated damages assessed? (If yes, please describe below).	Yes.....No.....N/A				
17.	Were any features offered in the proposal <u>not included</u> in the completed project? (If yes, please describe below.)	Yes.....No.....N/A				
18.	REMARKS: (Discuss strengths and weaknesses of the firm) Your Name: _____ Phone Number: _____ Firm Name: _____ Relationship to this Project: _____					

Your assistance in providing this past performance information is appreciated.

PHASE TWO – SUBMISSION OF TECHNICAL AND PRICE PROPOSALS BY FIRMS SELECTED IN PHASE ONE

1. INTRODUCTION: Each of the selected firms is invited to submit a proposal in response to Request for Proposals (RFP) No. W912DW-04-R-0003 entitled “FY 04 Whole Barracks Renewal, Fort Lewis, WA.” This RFP establishes project design and construction criteria and provides procedures, requirements, format, and other data to assist offerors in preparing their proposals. **It is the intent of the Government to make award based upon initial offers, without further discussions or additional information.** A contract will be awarded to the firm submitting the proposal that conforms to the RFP, is considered to offer the most advantageous offer in terms of the evaluation factors, including price, and is determined to be in the best interest of the Government.

2. PHASE 2 EVALUATION FACTORS:

2.1 Proposals will be evaluated on the basis of two criteria, **TECHNICAL** and **PRICE**. Award will be based upon evaluation of the following technical criteria listed in descending order of importance:

- a. Building Function
- b. Sustainability
- c. Building Aesthetics, Functionality and Maintainability
- d. Building Systems
- e. Site Design
- f. Site Engineering
- g. Management Plans and Schedules
- h. Extent of Small Business Participation

3. RELATIVE IMPORTANCE DEFINITIONS: For this evaluation, the following terms will be used to establish the relative importance of the technical criteria:

- **More Important:** The criterion is (2) times more important in value to the Government than another criterion.
- **Equal:** The criterion is of the same value to the Government as another criterion.

4. SUMMARY OF ORDER OF IMPORTANCE for Technical Criteria:

- Criterion 1 is equal to criterion 2.
- Criterion 2 is more important than Criteria 3 through 7.
- Criteria 3, 4, 5, 6 and 7 are equal to each other and are each more important than Criterion 8.

5. TECHNICAL MERIT RATINGS: Technical proposals will be evaluated and rated for each criterion using the following adjectival descriptions:

OUTSTANDING - Information submitted demonstrates offeror's potential to significantly exceed performance or capability standards. The offeror has clearly demonstrated an understanding of all aspects of the requirements to the extent that timely and the highest quality performance are anticipated. Has exceptional strengths that will significantly benefit the Government. The offeror convincingly demonstrated that the RFP requirements have been analyzed, evaluated, and synthesized into approaches, plans, and techniques that, when implemented, should result in outstanding, effective, efficient, and economical performance under the contract. Significantly exceeds most or all solicitation requirements. **VERY HIGH PROBABILITY OF SUCCESS.**

ABOVE AVERAGE - Information submitted demonstrates offeror's potential to exceed performance or capability standards. Has one or more strengths that will benefit the Government. The areas in which the offeror exceeds the requirements are anticipated to result in a high level of efficiency or productivity or quality. The submittal contains excellent features that will likely produce results very beneficial to the Government. Fully meets all RFP requirements and significantly exceeds many of the RFP requirements. Disadvantages are minimal. **HIGH PROBABILITY OF SUCCESS.**

SATISFACTORY (Neutral) - Information submitted demonstrates offeror's potential to meet performance or capability standards. An acceptable solution is provided. Either meets all RFP requirements for the criterion or contains weaknesses in some areas that are offset by strengths in other areas. A rating of "Satisfactory" indicates that, in terms of the specific criterion (or sub-criterion), the offeror has a reasonable probability of success, as there is sufficient confidence that a fully compliant level of performance will be achieved. The proposal demonstrates an adequate understanding of the scope and depth of the RFP requirements. No significant advantages or disadvantages. Equates to neutral. **REASONABLE PROBABILITY OF SUCCESS.**

MARGINAL – The submittal is not adequately responsive or does not address the specific criterion. The offeror's interpretation of the Government's requirements is so superficial, incomplete, vague, incompatible, incomprehensible, or incorrect as to be considered deficient. Proposal does not meet some of the minimum requirements. The assignment of a rating within the bounds of "Marginal" indicates that mandatory corrective action would be required to prevent significant deficiencies from affecting the overall project. The offeror's plans or approach will likely result in questionable quality of performance, which represents a moderate level of risk to the Government. Low probability of success although the submittal has a reasonable chance of becoming at least acceptable. Significant disadvantages. **LOW PROBABILITY OF SUCCESS.**

UNSATISFACTORY – Fails to meet performance or capability standards. Unacceptable. Requirements can only be met with major changes to the submittal. There is no reasonable expectation that acceptable performance would be achieved.

The proposal contains many deficiencies and/or gross omissions; fails to provide a reasonable, logical approach to fulfilling much of the Government's requirements; and/or fails to meet most or all of the minimum requirements. Very significant disadvantages. **VERY LOW PROBABILITY OF SUCCESS.**

6. Definitions of Strength, Weakness, and Deficiency:

Strength: A substantive aspect, attribute, or specific item in the proposal that exceeds the solicitation requirements and enhances the probability of successful contract performance.

Weakness: A flaw in the proposal that increases the risk of unsuccessful contract performance (i.e., meets the RFP requirements, but may have an impact on schedule or quality requirements). A **weakness need not be corrected** for a proposal to be considered for award, but **may** affect the offeror's rating.

Deficiency: A material failure of a proposal to meet the Government requirement or a combination of significant weaknesses in a proposal that increases the risk of contract performance at an unacceptable level. A deficiency **must be corrected** for a proposal to be considered for award.

7. Submittal Requirements for Phase Two:

7.1 General Submittal Requirements for Phase Two:

Proposal Contents: Proposals shall be submitted in two parts: (a) Technical proposal and (b) Price proposal. Each part shall be submitted in a separate envelope/package, with the type of proposal (i.e., Technical or Price) clearly printed on the outside of the envelope/package. **NOTICE TO ALL FIRMS: The information provided for Phase One of this solicitation process regarding experience, qualifications and past performance is considered part of the firm's Technical proposal. No additional information shall be submitted for the evaluation factors listed for Phase One. For ease of evaluation, submit the proposal following the same organization and title format as specified in paragraph 8.1 Written Technical Proposal and 9. Price Proposal Format.**

7.1.1 Technical Proposal:

A **cover letter** should be the **first page** of the technical proposal and should include:

- (a) Solicitation number.
- (b) Name, address, and telephone and facsimile numbers of the firm signing the SF 1442 (and electronic address).

(c) Names, titles and telephone and facsimile numbers (and electronic addresses) of persons authorized to negotiate on the firm's behalf with the Government in connection with this solicitation.

(d) Name, title, and signature of the person authorized to sign the proposal.

(e) A statement specifying agreement (see also (f) below) with all terms, conditions provisions included in the solicitation and agreement to furnish any and all items upon which prices are offered at the proposed item prices.

(f) **Deviations From The RFP:** In the cover letter, firms shall specifically identify, in a section entitled "Deviations," any deviations from the minimum RFP requirements. All alternates shall be addressed and expanded upon in the firm's original proposal and any proposal revision.

(g) **Identification Of Items Exceeding RFP Requirements:** In an attachment to the cover letter, firms shall list all items exceeding the minimum RFP requirements. The list shall be entitled "IDENTIFICATION OF ITEMS EXCEEDING RFP REQUIREMENTS." All items listed shall be addressed and expanded upon in the firm's original proposal any proposal revision.

(h) **Final Proposal Revision:** If required to submit a final proposal revision, the accompanying cover letter shall identify all changes made to the firm's initial proposal along with any deviations from the RFP (per (f) above). In addition, firms shall attach a list (per (g) above) of any additional items exceeding the minimum RFP requirements. This list shall also include elimination of, or revisions to, those items previously identified as exceeding the RFP.

7.1.2 Technical Data consisting of drawings, outline specifications, and supporting data (schedules, catalogue cuts, etc.) shall be furnished as part of the formal proposal and shall meet all requirements of the RFP, design standards, technical specifications, and referenced regulations. Data shall be specific and complete, and demonstrate thorough understanding of the requirements. Data shall include, where applicable, complete explanations of procedures and the schedule the firm proposes to follow. Additionally, data shall demonstrate the merit of the technical approach offered and shall be an orderly, specific, and complete document in every detail.

7.1.3 Proposal information except for drawings shall be submitted in standard letter, hardback loose-leaf binders with a table of contents. Contents of the binders shall be tabbed and labeled to afford easy identification. Contents shall follow the order of the evaluation criteria and pages shall be numbered. No material shall be incorporated by reference or reiteration of the RFP. Any such material will not be considered for evaluation. The technical proposal shall be presented in a manner that allows it to "**STAND ALONE**" without the need to reference other documents.

7.1.4 Firms submitting proposals should limit submission to data essential for evaluation of proposals so that a minimum of time and monies are expended in preparing information required by the RFP.

7.1.5 Data submitted must reflect the designer's interpretation of criteria contained in the RFP. Drawing information should present basic concepts, arrangements, and layouts. Arrangements, layout plans, and notes may be combined together on single sheets in order to simplify presentation, so long as clarity is maintained. Drawings are not intended to be construction detail plans.

7.1.6 Unnecessarily elaborate or voluminous brochures or other presentations, beyond those sufficient to present a complete and effective response, are not desired and may be construed as an indication of the firm's lack of cost-consciousness. Elaborate artwork, expensive paper and bindings, and expensive/extensive visual and other presentation aids are unnecessary.

7.1.7 Firms are encouraged to prepare drawings for proposal submission using guidelines presented in Section 00810, Paragraph 5, Preparation of Project Design Documents. Proposal drawings, schedules, tables, etc. should be limited to ½ size (approximately 11" X 17"). However, to minimize effort expended by the firms, other formats will be accepted so long as requested information is provided. In either case, firms are encouraged to provide INFORMATIVE DRAWING NOTES to convey important features of their design.

7.1.8 Technical proposals will be evaluated for conformance with the minimum RFP criteria, and for the extent to which they exceed those criteria. While the intent is to keep the pre-award design effort to a minimum, proposals must provide adequate detail for evaluators to determine how the proposals meet or exceed the RFP criteria.

7.2 Specific Submittal requirements for Phase Two:

7.2.1 Criterion 1 - Building Function: This factor considers the overall functional layout and interaction of the spaces in the facilities. The factors to be considered deal with the planning and design of the spaces with respect to soldier living and working conditions and the operations of a barracks facility with associated administrative facilities.

7.2.1.1 MINIMUM SUBMITTAL REQUIREMENTS FOR CRITERION 1: Provide floor plans to address the following areas, in the order below:

- a. Appropriate Facilities - The proposal shall include all the required facilities as described in the Statement of Work.
- b. Minimum Space And Facility Size - The proposal shall include all the mandatory spaces in accordance with the requirements set forth in the Statement of Work.

The proposal shall comply with minimum or maximum size limitations for each defined space.

c. Functional Arrangement - Functional arrangement shall be shown for each of the following facility types. All items shall be addressed for each facility type in the order provided.

Facility:

1. Barrack and Soldier Community Buildings
2. Large Company Operations Facilities
3. Battalion Headquarters Facilities

7.2.1.2 Evaluation Method: Consideration will be given to the degree to which the floor plans address the following items:

- (a) Building floor plan provides suitable space arrangement, workflow and access well suited to the operation and mission of the facility.
- (b) Building floor plan provides acceptable life safety and fire safety measures. Life Safety Analysis for the facility is acceptable and in conformance with the Statement of Work.
- (c) Floor plan adequacy with respect to privacy considerations for the soldiers.
- (d) Floor plan demonstrates compliance with the mandatory requirements for furnishings while allowing suitable space for circulation and other requirements.

7.2.2 Criterion 2 - Sustainability: The Offerors shall include in their proposals a preliminary ranking of the sustainable design considerations included in the proposal. This ranking shall utilize the LEED Project Checklist as prepared by the U.S. Green Building Council. The successful offeror shall be required to complete a detailed analysis on the final design that meets or exceeds the preliminary ranking established at proposal level. Proposals must score at least a “**Silver**” LEED Level. The evaluation of this factor shall be as follows:

<u>FACTOR RATING</u>	<u>LEED Level</u>
Outstanding	Platinum
Above Average	Gold
Satisfactory	Silver
Marginal	Certified
Unsatisfactory	No Rating

7.2.2.1 MINIMUM SUBMITTAL REQUIREMENTS FOR CRITERION 2:

(a) Provide a narrative describing how sustainable design principles will be used in design process for each discipline. The narrative shall address how environmental

considerations will be integrated into the design to help conserve resources such as energy and water, reduce waste, maximize use of recovered and recycled materials, minimize the use of toxic and harmful substances in facility construction and operation, and develop safe and healthy living spaces.

(b) Provide a list of recovered/recycled materials proposed for use in the performance of the contract. Recovered materials shall be used to the maximum extent practicable. Practicable is defined (per 40 CFR CH.1, 247.3) as capable of being used consistent with (a) performance in accordance with applicable specifications, and (b) availability at a reasonable price, availability within a reasonable period of time, and maintenance of a satisfactory level of competition. See Section 00800 for list of EPA designated items and their definitions.

7.2.2.2 Evaluation Method: Evaluation will be based on the level of certification proposed for achievement, how well the design will integrate the use of sustainable design principles, the process by which the design and construction will promote the principle of responsible stewardship of the environment, and the extent of use of recovered and recycled materials.

7.2.3 Criterion 3 Building Aesthetics, Functionality and Maintainability: This criterion considers the overall aesthetic value of the exterior style, appearance and finishes and the interior design of spaces within the facilities, as well as the functionality and maintainability of these systems. This criterion also includes the exterior pedestrian ways and overall environment created by the design proposed. Areas of consideration for this criterion are:

a. Exterior Considerations:

- (1) Facades, roof lines, and delineation of entrances.
- (2) Proportions of fenestration in relation to elevations.
- (3) Shadow effects, materials, and textures.
- (4) Proportion and scale within the structure.
- (5) Compliance with Installation Design Guide Recommendations
- (6) Conformance to adjacent structures architectural styles
- (7) Exterior color schemes proposed.
- (8) Other aesthetic considerations.

b. Interior Considerations:

- (1) Colors and details conducive to the mission of the facility.
- (2) Materials and finishes represent a positive working and/or living environment.
- (3) Ceiling heights, hallway widths, and other space sizes and configurations provide a workable solution to the facility mission.
- (4) Interior design package provides for an interesting and attractive environment.

- (5) Suitability of interior system and finishes for use in a facility where the primary occupants are soldiers operating in a heavy usage environment.

7.2.3.1 MINIMUM SUBMITTAL REQUIREMENTS FOR CRITERION 3 (including development of building systems and the degree to which that development enhances the aesthetics, functionality and maintainability of the facility, as well as quality of systems, products, fixtures, materials, finishes and colors proposed for the facility):

(a) Architectural Design Narrative - The architectural design concepts for the project, as depicted on the drawings attached to this RFP and further defined in the Statement of Work, shall be used as a basis for design and for preparing the final designs for the project. Provide narratives outlining how the design development of building systems shall meet project criteria as well as maintain the intended architectural layout and appearance. At a minimum, the narrative shall address interior and exterior materials (including a discussion of the interior color schemes), construction techniques, assemblies and detailing as appropriate for the facilities.

(b) Interior elevations (drawings/sketches). Provide four (4) interior elevations as follows: (1) typical office, (2) typical classroom, (3) typical conference room, and (4) typical barracks room.

(c) Catalog Cuts - Provide supporting data and manufacturer's descriptive literature for products and materials proposed for this project including architectural interior and exterior finishes, hardware, doors, blinds, work counters, etc.

7.2.3.2 Evaluation Method: Technical merit will be based on the degree to which proposed design, methods, materials, and equipment satisfy operational requirements and exceed minimum acceptable quality, including durability, maintainability, reliability and energy efficiency, specified in RFP.

7.2.4 Criterion 4 Building Systems: This criterion considers the materials, layout, maintainability, quality, durability, maintenance considerations, and any aspects of the proposed building systems and materials. Offerors are encouraged to present energy, maintenance, and life cycle cost improvements that result in overall improvement to the final facilities constructed. The following areas will be considered in evaluating this factor.

a. Building Heating and Ventilation Systems. This includes the heating and ventilating and environmental control systems proposed for installation. Proposals should incorporate energy recovery systems, high efficiency systems, energy conservation, thermal storage systems, boiler configurations that best match the building heating profiles, and other systems and features designed to enhance the overall performance of the facility while reducing the operation and maintenance costs.

b. Building Interior Electrical Systems. This includes the electrical power and lighting systems proposed for installation and electrical characteristics of the building electrical system including spare capacities, building power distribution and branch circuiting. Proposed lighting system should include control systems, lighting intensities and fixtures proposed for typical hallways and meeting rooms, office spaces, and living spaces

c. Integration of Interior Support Systems (HV, Electrical, Structural, Plumbing, etc). This includes the integration of the various supporting systems among themselves and within the proposed structural systems. Offeror's proposals shall include a narrative that illustrates the methods and processes whereby the various supporting systems are coordinated to assure a minimum of construction problems that relate the interface between the disciplines.

d. Building Thermal Performance. This includes the overall thermal performance of the building structure and includes walls, windows, doors, infiltration, perimeter insulation, and any heat transferring surface within the new constructions.

e. Building Construction Materials (Other than Structural, HV, Electrical). This includes the quality of the materials proposed for installation in the facility.

f. Communications, Cable Television and Telephone Systems. This includes the provision of communications, cable television and telephone systems in the facilities and the materials proposed for installation.

g. Security Systems. This includes the proposed security systems including design and materials proposed for installation.

h. Fire Protection, Suppression and Detection Systems. This includes the proposed fire protection, suppression and detection systems including design and materials proposed for installation.

i. Plumbing Systems. This includes the provision of plumbing systems in the facilities and the materials proposed for installation.

j. Building Structural Systems. This includes the structural systems and sub-systems proposed for installation in the facilities including the roof systems, floor systems, exterior and interior wall composition, floor/ceiling and roof assemblies lateral load resisting systems and foundation. This item also includes the integration characteristics of the structure with architectural, mechanical, electrical and plumbing systems and characteristics of the proposed systems with regard to fire resistive characteristics, vibration response and accommodation of total and differential settlements.

7.2.4.1 MINIMUM SUBMITTAL REQUIREMENTS FOR CRITERION 4:

(a) Design Narratives - Provide a narrative description of each proposed system listed above (items a through j, except item h, fire suppression) that addresses materials, layout, maintainability, quality, durability, maintenance, system performance and integration with existing base infrastructure (where applicable). Also include a description systems or materials which include betterments or which exceed the minimum requirements of the RFP if proposed.

(b) Drawings/Sketches - Provide plans (single line diagrams, schematics, schedules, tables, etc.) which address items of consideration for the building systems listed above in items a through j, except item h. Also show the proposed types and locations of equipment, identify sequences of operations, and demonstrate compliance with applicable RFP technical requirements for each system.

(c) Catalog Cuts - Provide manufacturer's descriptive literature identifying type/model of major pieces of equipment required for each building system, as applicable. Provide supporting data and manufacturer's descriptive literature for ancillary system components, fixtures, products and materials.

(d) Fire Protection System (item h) - Provide a narrative and/or schematic covering the following: Building Classification; Occupancy; Sprinkler Zoning and Densities; Control and Detection Systems; Reporting and Alarm Systems. Provide supporting data and manufacturer's descriptive literature for major components of the proposed system.

7.2.4.2 Evaluation Method: Technical merit will be based on the degree to which proposed design, construction materials, and equipment, for each of the systems listed in items a through j of criterion 4 satisfy operational requirements and exceed minimum acceptable quality, including durability, maintainability, reliability and energy efficiency, specified in the statement of work. Evaluation of each system will concentrate on the proposed design approach narratives, information presented in drawings and sketches, and the equipment and material catalog information included in the proposals. The systems proposed must meet the minimum requirements set forth in the statement of work and shall represent systems that are fully integrated into the building structure and are fully capable of sustaining the function and operation of the buildings. Additional consideration will be given to proposals that provide systems or materials that incorporate energy saving materials into the proposals, or materials that represent a lower life cycle cost to the installation.

7.2.5 Criterion 5 Site Design: This criterion considers the layout and planning of the site and various specialties that comprise a good site development plan. The goal and direction of the whole barracks renewal program is to produce a "campus like" setting and encourage a positive relationship between the site development and the soldier's needs. All elements of site design will be considered in this criterion, with the exception of the design and materials utilized for utility systems, which will be evaluated under a different factor. The following areas shall be considered in evaluating this criterion.

a. Area Development Plan. This includes the overall development concept proposed in the Offeror's plan with respect to the placement and orientation of the facilities, parking areas, pedestrian ways, circulation paths, site lighting, and other aspects which comprise the overall site development. Proposals that reflect the design intent and direction as outlined in the statement of work will receive the best consideration during the evaluation process.

b. Force Protection Considerations. This includes consideration of the site constraints imposed by the Force Protection requirements in the statement of work into the Offeror's proposal.

c. Pedestrian Circulation. This includes the design of the pedestrian walkways and sidewalks to facilitate movement of pedestrians from one facility to another. Some items for consideration are:

- (1) All parking areas served by sidewalks.
- (2) The proposed sidewalk system provides direct, convenient access to all facilities from the associated parking areas.
- (3) Provision of a sidewalk system around and between facilities.
- (4) The new sidewalk system is an extension of the existing adjacent sidewalk systems

d. Landscaping. This includes the design, quality, quantity, and location of all planting materials in the proposal. The following items shall be included:

- (1) The landscape design represents a complete, integrated plan that provides a low maintenance, sustainable, and aesthetically pleasing landscape.
- (2) The plant materials selected comply with the Statement of Work and with Attachment 14: List of Prohibited and Acceptable Plants.
- (3) Existing healthy trees retained wherever possible.
- (4) The parking areas include attractive planting areas with shade trees to break up the large areas of paving including, at minimum, parking islands at each end of parking areas and a parking island every 10-12 spaces.
- (5) Tree locations well coordinated with utilities.

e. Parking Areas. This includes the provision of parking for the new facilities. The following items will be considered:

- (1) Proximity to new facilities.
- (2) Layout of Parking Areas (with more than 5 spaces)
 - (a) Internal Circulation considerations
 - (b) Clear exit and entrance pathways
 - (c) Ninety (90)-degree entrances/exits to primary streets
 - (d) Separation of parking areas entrances/exits from street intersections.

f. Grading. This includes the grading alterations to the existing site to suit the new development. The Offeror's proposal shall include the amount and type of site re-grading required and provisions for positive storm drainage away from the new facilities and parking areas.

g. Site Amenities. This includes the provision of site amenities to enhance the outdoor livability of the whole barracks complex. The requirements shown in the statement of work are considered minimums and the Offerors are encouraged to include additional items or considerations to enhance the nature of the whole barracks complex and which fosters the development of the areas as "campus like" environments:

- (1) Site furniture requirements provided as listed in the statement of work.
- (2) Courtyards and/or patios provided as listed in the statement of work.
- (3) Passive recreation and sports courts provided as listed in the statement of work.
- (4) Special paving used to enhance and delineate entrances and focal areas in the design.
- (5) The area between "C" Street and "D" Street developed for passive recreation including running paths and par course as listed in the statement of work.

7.2.5.1 MINIMUM SUBMITTAL REQUIREMENTS FOR CRITERION 5:

Site Design Narrative – The RFP drawings depict the desired site design concept and master plan for the project and are to be followed explicitly in terms of location and layout of the buildings (with the exception of the barracks buildings). Provide narratives that focus on quality of materials, finishes, and fixtures proposed for site development on the following:

- Engineering concepts for storm water management, drainage, erosion and sedimentation control, and utility connections.
- Concepts for new roadway, widened roadway, and repaired roadway sections.

7.2.5.2 Evaluation Method: The layout and functionality will be evaluated. Merit will be based on the degree to which the proposed design satisfies the layout and functional requirements specified in the statement of work and the quality of materials, finishes, and fixtures proposed for the site.

7.2.6 Criterion 6 Site Engineering: This criterion evaluates the technical performance of the proposed site utility and exterior utility distribution systems. The quality of the system design, the materials selected, maintainability, layout (if applicable) and accessibility (if applicable) will be considered in this item. Emphasis will be placed on durability, corrosion resistance and life cycle cost of materials selected. Consideration will be given to the suitability of the chosen materials for the site soil conditions present.

Site engineering will consider all aspects of the proposal beyond the 1.5 m line from all new facilities. The areas listed below will be considered:

- a. Water System.
- b. Gas Piping and Storage.
- c. Electrical Distribution.
- d. Communications (TV, Telephone).
- e. Sanitary Sewer System.
- f. Storm Sewer System.
- g. Pavements.

7.2.6.1 MINIMUM SUBMITTAL REQUIREMENTS FOR CRITERION 6:

(a) Site Engineering Narrative – The RFP drawings depict the desired site design concept and master plan for the project and are to be followed explicitly in terms of location and layout of the building (with the exception of the barracks buildings). Provide a narrative description of each proposed system listed above (items a through g) that addresses materials, layout, maintainability, quality, durability, maintenance, system performance and integration with existing base infrastructure. Also include a description systems or materials which include betterments or which exceed the minimum requirements of the statement of work if proposed.

(b) Drawings/Sketches - Provide plans (single line diagrams, schedules, tables, etc.) which address items of consideration for site engineering listed above in items a through g. Also show the proposed types and locations of equipment, and demonstrate compliance with applicable statement of work technical requirements for each system.

(c) Catalog Cuts - Provide manufacturer's descriptive literature identifying type/model of major pieces of equipment required for each site engineering system, as applicable. Provide supporting data and manufacturer's descriptive literature for ancillary system components, fixtures, products and materials.

7.2.6.2 Evaluation Method: Technical merit will be based on the degree to which proposed design, construction materials, and equipment, for each of the systems listed in items a through g of Criterion 6 satisfy operational requirements and exceed minimum acceptable quality, including durability, maintainability, and reliability specified in the RFP. Evaluation of each system will concentrate on the proposed design approach narratives, information presented in drawings and sketches, and the equipment and material catalog information included in the proposals. The proposed systems must meet the minimum requirements set forth in the RFP and shall represent systems that are fully integrated into the existing site infrastructure and are fully capable of sustaining the function and operation of the buildings. Additional consideration will be given to proposals that provide systems or materials that incorporate recycled materials into the proposals, or materials that represent a lower life cycle cost to the installation.

7.2.7 Criterion 7 Management Plans And Schedules

This factor evaluates the Offeror's Project Management Plans and proposed schedule for completion of the entire design-build project. The Government will evaluate the Offeror's understanding of the solicitation provisions with respect to an integrated design-build process and the associated quality control, scheduling, coordination, and contract close out provisions.

a. Quality Control Plan. The quality control plan provided by the Offeror will be reviewed and evaluated for inclusion of specific quality control practices and requirements necessary for the successful completion of all phases of this project. These phases include design stages as well as construction specialties. Offeror's plan shall show the inclusion of the Corps Three Phase Inspection process and address the implications and operations of the Quality Control Plan and its integration with the Quality Assurance Operations performed by the Government.

b. Schedule Information. The schedule will be evaluated to assess the inclusion of "fast tracking" and the rationale of how the Offeror intends to comply with the submitted schedule. The schedule shall reflect a single task oriented structure for both design and construction. The schedule will be reviewed for completeness and the inclusion of required milestones. A schedule that improves on the Government supplied maximum duration will receive more favorable consideration.

c. Closeout Plan. The Offeror's closeout plan will be reviewed and evaluated to determine the Offeror's understanding of the close out requirements of the solicitation. Particular emphasis will be placed on Operations and Maintenance Manual production and Installation Staff training methods and processes.

7.2.7.1 MINIMUM SUBMITTAL REQUIREMENTS FOR CRITERION 7:

(a) The outline Quality Control Plan shall identify type of system and personnel responsible for design quality control and major work items and required personnel to perform testing and three-phase inspection (preparatory, initial and follow-up) for construction quality control. State the method by which the offeror shall assure that the design meets contract requirements, including all codes, standards, functional and specified design requirements. State the method by which the offeror shall assure that the construction methods and materials meet the design and contract requirements, and the method by which conflicts between design and construction constraints shall be resolved. Provide samples of forms to be used for daily Quality Control Inspections.

(b) Provide an outline of the plan for design and construction scheduling of the project. The schedule shall be prepared in the form of time-scaled (Gantt Chart) summary network diagram and shall graphically indicate sequences proposed to accomplish each work operation and appropriate interdependencies between various activities. Identify critical elements of design and construction that could delay the entire project. The chart shall show the starting and completion times of all activities on a linear horizontal time scale beginning with the notice to proceed with design and

indicating calendar days to completion. State the method by which the offeror shall track schedules and assure that the established product delivery dates are met. The offeror must state the total number of calendar days proposed from receipt of initial notice to proceed for design through completion for the entire project. Offerors shall base their schedule on the information provided in the following Sections of the RFP: Section 00800, SC-1, Commencement, Prosecution and Completion of Work; the Design Submittal Schedule requirements provided in Section 00810, paragraph 1.2 Phase I (Design) - Requirements; Limit the activities to those critical to timely overall completion of the project (no more than 80). Allow 21 calendar days each for Government review of 65% and 95% design submittals as described in SECTION 00810.

(c) The closeout plan shall identify system commissioning procedures, building turnover, operation and maintenance manual production, installation staff training, and warranty service.

7.2.7.2 Evaluation Method: The firm's planning and scheduling of the work (design, design reviews, construction, commissioning, O&M manual production, as-built drawing production and turnover) will be evaluated. Consideration will be given to the completeness, reasonableness, and realism of the proposed schedule, and identification of critical elements of design and construction that can delay the entire project. Consideration will also be given to the degree the offeror's plans assure the project will be designed and constructed to meet or exceed RFP requirements.

7.2.8 Criterion 8 Extent of Small Business Participation

7.2.8.1 Minimum Submittal Requirements for Criterion 8: No submittal is required for this criterion. The Government will utilize performance evaluations contained in the CCAS System to evaluate this criterion.

7.2.8.2 Evaluation Method: Firms will be evaluated for the success and extent of their small business participation in their subcontracting with small and disadvantaged business concerns. Firms will be evaluated based on the ratings received for item entitled "Implementation of Subcontracting Plan" on their past performance evaluations retrieved from the CCAS System. Firms without any evaluations in CCASS, or for which this item was not evaluated (i.e., N/A), will be assigned a neutral rating of satisfactory. Firms that receive a rating below satisfactory for this item in one or more CCASS evaluations will receive a rating of marginal for this criterion.

8. TECHNICAL PROPOSAL FORMAT:

8.1 WRITTEN TECHNICAL PROPOSAL. As a minimum, each copy of the technical proposal should contain the following general format for the volumes specified in the following table. Pages should be numbered consecutively throughout the technical proposal.

Technical Proposal (original and 10 copies required):

Technical Proposal Cover Letter
Table of Contents (List all sections of the technical proposal)
Building Function
Sustainability Considerations
Building Aesthetics, Functionality And Maintainability
Building Systems
Site Design
Site Engineering
Management Plans And Schedules
Extent of Small Business Participation

8.2 ORAL PRESENTATIONS.

8.2.1 Schedule of Presentations. After receipt and evaluation of technical proposals, but before establishing the competitive range, each of the pre-qualified firms will be required to give an oral presentation to the Government Technical Evaluation Team (TET).

8.2.1.1 Presentations will be held at Federal Center South, 4735 East Marginal Way South, Seattle, WA in the Fairmont Room on the second floor at the south end of the building.

8.2.1.2 The oral presentations will be conducted during the period **To be announced in a later amendment.**

8.2.1.3 Each firm will be provided with the date and time of their presentation via written **and** telephonic notice before the due date for receipt of proposals. Requests from offerors to reschedule their presentations will not be allowed unless it is determined to be necessary by the Government to resolve problems encountered in the presentation process. The order of presentation will be determined by the Government.

8.2.2 Description of the Presentation Site.

8.2.2.1 The Fairmont Room is a large (double-room size) room with windows along the outer wall at the ceiling. The room is bright enough for the filming of a VHS videotape presentation, yet can be dimmed for presentations. To minimize presentation costs, multi-media presentations are not desired. The offerors are responsible for bringing the equipment they need to make their presentation. Offerors may inspect the presentation site prior to the presentation date by coordinating with Sherrye Schmahl.

8.2.3 Time Allowed for Presentations and Clarification of Oral Presentation Points. Offerors shall make their oral presentations in person to the TET and authorized Government representatives. Each firm shall have a maximum of 45 minutes in which to make its presentation. The 45-minute time limit will begin with the Contract's Specialist's (or Contracting Officer's) direction to begin. Immediately

after completion of each oral presentation, TET members or authorized Government representatives may ask for clarification of any of the points addressed that were unclear and may ask for elaboration of points that were not adequately supported in the presentation. Any such interchange between the TET and presenters will be for clarification only and will not constitute discussions within the meaning of FAR 15.306(a). Offerors will not be allowed to revise their written technical proposals after the oral presentation, unless the Government sends an official letter opening discussions. The clarification session will not exceed 45 minutes.

8.2.4 Offeror's Presentation Team. Only key personnel responsible for contract performance should present the briefing; not marketing staff or professional proposal presenters. Key personnel for the presentation team may include, but are not limited to, the Construction Project Manager, Project Superintendent, and Design Project Manager.

8.2.5 Submittal Requirements for the Oral Presentation. Offerors are to submit oral presentation materials in writing after their technical proposals so that they are received at Seattle District Contracting Division no later than 2:00 p.m., Pacific Time, on **To be announced in a later amendment**. Each presentation will be videotaped by a Government representative. The videotape will become part of the official record of this solicitation. Offerors wishing to have a copy of their briefing, should provide a video tape and a self-addressed package to Sherrye Schmahl on the day of their presentation. No postage is necessary.

8.2.6 Purpose and Content of Oral Presentations.

The sustainability aspect of this work is critical to the success of this project. Therefore, it is important for the TET to obtain as much assurance as possible that the selected firm thoroughly understands the project's special requirements and can perform all functions necessary to make this a successful project. Oral presentations are considered a way to augment the written proposal in communicating each firm's depth of understanding and further conveying the firm's sustainable design considerations with regards to this project. Therefore, the offeror shall use the oral presentation to address, in detail, its understanding of the elements of technical evaluation Criterion 2, Sustainability. At the beginning of the presentation, the name, position, and company's affiliation of each presenter should be stated. **The presentation will not encompass pricing information.**

8.2.7 Evaluation of the Oral Presentations.

The oral presentation will not be evaluated as a separate factor. The oral presentation will be used as part of the evaluation of technical evaluation Criterion 2, Sustainability. The Government may use the information and insights gained from the oral presentations and responses to questions concerning the oral presentations to reassess the offeror's strengths and weaknesses associated with the offeror's project

management. The oral presentation may result in a higher or lower overall rating of Criteria 2.

9. PRICE PROPOSAL FORMAT:

9.1 The price proposal shall be submitted in ORIGINAL only, and must be signed by an official authorized to bind your organization. Note that the Standard Form 1442, Block 13D states the minimum number of calendar days after the date offers are due for Government acceptance of the offer. All amendments must be acknowledged on Standard Form 1442 BACK by date and number in Block 19 or by telegram. Provide the name, point of contact, phone number, and address for bank and bonding company of firm signing SF 1442.

9.2 **Bid Bonds** must be accompanied by a **Power of Attorney containing an original signature from the surety**, which must be affixed to the Power of Attorney after the Power of Attorney has been generated. Computer generated and signed Powers of Attorney will only be accepted if accompanied by an original certification from a current officer of the surety attesting to its authenticity and continuing validity. Performance and payment bonds have the same requirement.

9.3 **Small Business Subcontracting. Large businesses are required to submit a subcontracting plan** (See FAR Clause 52.219-9 Alt II, Small Business Subcontracting Plan, Jan 2002) with initial price proposals. Award will not be made under this solicitation without an approved subcontracting plan. See the "Notice to Large Business Firms" located in the front of this solicitation.

9.4 **Joint Ventures.** No contract may be awarded to a joint venture that is not registered in the Central Contractor Register (CCR). Joint ventures may register in the following way:

(a) The firm that will be the recipient of payments should be registered in the CCR and have a DUNS number. This firm is considered in the CCR to be the "mother firm." If no money is to go to any other firm in the joint venture, the mother firm may make the other firm in the joint venture a "child." This child will be assigned the mother firm's CCR number with an additional four (4) numbers attached. Since the child firm is not receiving any payments, they do not need to get a DUNS number. HOWEVER, in order to cover all possibilities, it might be advisable to have each firm registered in the CCR.

(b) Call the CCR at 1-888-227-2423, choose option "0" to get the mother-child relationship set up. DUN & Bradstreet phone number is 1-800-333-0505.

(c) If the joint venture has a newly created name, then it must have its own DUNS number and register as such in the CCR.

9.4.1 In the cover letter of your proposal, provide the complete names, addresses, and phone and fax numbers of the two firms in the joint venture.

9.4.2 Signature requirements: SF 1442, SOLICITATION, OFFER, AND AWARD (pages 00010-1 and 00010-2), Block 20 requires that the name and title of the person authorized to sign the offer for the joint venture be provided.

9.4.3 Corporate certificate: Ensure that joint-venture portion is completed by both firms.

9.4.4 In the case of a joint venture, the following is required: A contract with joint venturers may involve any combination of individuals, partnerships, or corporations. The contract shall be signed by each participant in the joint venture in the manner prescribed below for each type of participant. When a corporation is participating, the Contracting Officer shall verify that the corporation is authorized to participate in the joint venture.

(a) Individuals. A contract with an individual shall be signed by that individual. A contract with an individual doing business as a firm shall be signed by that individual, and the signature shall be followed by the individual's types, stamped, or printed name and the words "an individual doing business as" [insert name of firm].

(b) Partnerships. A contract with a partnership shall be signed in the partnership name. Before signing for the Government, the Contracting Officer shall obtain a list of all partners and ensure that the individual(s) signing for the partnership have authority to bind the partnership.

(c) Corporations. A contract with a corporation shall be signed in the corporate name, followed by the word "by" and the signature and title of the person authorized to sign. The Contracting Officer shall ensure that the person signing for the corporation has authority to bind the corporation.

9.4.5 In addition to the requirements stated above, and to assure a single point of contact for resolution of contractual matters and payments, the Contracting Officer shall obtain a certificate signed by each participant in the joint venture as follows: In the proposal include the following statement:

"The parties hereto expressly understand and agree as follows:

a. **(name, title, and company)** is the principal representative of the joint venture. As such, all communications regarding the administration of the contract and the performance of the work thereunder may be directed to him or her. In the absence of **(same name, title, and company), (enter name, title, and company of alternate)** is the alternate principal representative of the joint venture.

b. Direction, approvals, required notices, and all other communications from the Government to the joint venture, including transmittal of payments by the Government,

shall be directed to **(enter name, title, and company of principal)**, principal representative of the joint venture.”

9.4.6 The bid bond form, Block “Principal” requires that the name and title of the person authorized to sign for the joint venture be included.

9.4.7 After award, the performance and payment bonds, and the insurance certificate(s) provided shall be in the name of the joint venture.

10. DESIGN TO BUILD. The estimated design to build price for this project is \$43.25M.

11. FUNDING. The total amount of funds available for the design and construction of this project is specified in the Schedule. Offerors should design and construct to this funding limit.

12. EVALUATION AND AWARD PROCEDURES

12.1 TECHNICAL EVALUATION:

12.1.1 : Technical proposals will be evaluated by a Technical Evaluation Team (TET) comprised of representatives of the Corps of Engineers and the Using Agency. Pricing data will not be considered during this evaluation. Criteria for the technical evaluation are set forth elsewhere in the solicitation and will be the sole basis for determining the technical merit of proposals.

12.1.2 The TET shall utilize the relative importance definitions and technical merit ratings described earlier in this section of the solicitation to perform their technical evaluation.

12.1.3 To be considered for award, proposals must conform to the terms and conditions contained in the RFP. No proposal will be accepted that does not address all criteria specified in this solicitation or which includes stipulations or qualifying conditions unacceptable to the Government.

12.2 PRICE EVALUATION:

Price is of secondary importance to the technical criteria. Pricing will be independently evaluated to determine reasonableness and to aid in the determination of the firm's understanding of the work and ability to perform the contract. Financial capacity and bonding ability will be verified.

12.3 SELECTION AND AWARD:

12.3.1 Subject to provisions contained herein, award of a firm-fixed price contract shall be made to a single firm. The Government will select the best value offer based on technical merit and price.

12.3.2 Best Value Analysis. The Government is more concerned with obtaining superior technical features than with making award at the lowest overall cost to the Government. In determining the best value to the Government, the tradeoff process of evaluation will be utilized. The tradeoff process permits tradeoffs among price and technical criterion, and allows the Government to consider award to other than the lowest priced offeror or other than the highest technically rated offeror. You are advised that greater consideration will be given to the evaluation of technical proposals rather than price. It is pointed out, however, that should technical competence between offerors be considered approximately the same, the cost or price could become more important in determining award.

12.3.3 Selection And Award Without Discussions: It is the intent of the Government to make award based upon initial offers, without further discussions or additional information. Therefore, initial proposals should be submitted based on the most favorable terms from a price and technical standpoint. Do not assume there will be an opportunity to clarify, discuss or revise proposals. If award is not made on initial offers, discussions will be conducted as described below.

12.3.4 Competitive Range: If it is not in the Government's best interest to make award on initial offers, the Contracting Officer will establish a competitive range of one or more offers and conduct discussions with those firms. When determining the competitive range, the Contracting Officer will consider the technical ratings and prices offered.

12.3.5 Discussions: Discussions are usually conducted in writing, but may also be by telephone or in person. Discussions are tailored to each offeror's proposal and are only conducted with offeror(s) in the competitive range. The primary objective of discussions is to maximize the Government's ability to obtain the best value, based on the requirement and the evaluation criteria set forth in this solicitation. If a firm's proposal is eliminated or otherwise removed from consideration for award during discussions, no further revisions to that firm's proposal will be accepted or considered. Discussions will culminate in a request for Final Proposal Revision the date and time of which will be common to all remaining firms.

12.3.6 After Discussions: Revisions to the proposals submitted during discussions, if any, will be evaluated by the TET and, if warranted, an adjustment made to the rating previously assigned. The Contracting Officer will then perform a best value analysis based on the final prices and technical proposals. Selection will be made on the basis of the responsive, responsible firm whose proposal conforms to the RFP and represents the most advantageous offer to the Government, subject to availability of funds.

12.3.7 Debriefings: Upon written request, unsuccessful firms will be debriefed and furnished the basis for the selection decision and contract award in accordance with FAR 15.505 and FAR 15.506.

12.3.8 Proposal Expenses And Precontract Costs: This solicitation does not commit the Government to pay costs incurred in preparation and submission of initial and subsequent proposals or for other costs incurred prior to award of a formal contract.

12.3.9 Release Of Information: After receipt of proposals and until contract award, source selection information will not be furnished to any firm.

END OF INTRODUCTORY TEXT TO SECTION 00100

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Section 00600 – Representation & Certifications

52.203-2	Certificate Of Independent Price Determination	APR 1985
52.203-11	Certification And Disclosure Regarding Payments To Influence Certain Federal Transactions	APR 1991
52.204-3	Taxpayer Identification	OCT 1998
52.209-5	Certification Regarding Debarment, Suspension, Proposed Debarment, And Other Responsibility Matters	DEC 2001
52.219-1 Alt I	Small Business Program Representations (Apr 2002) Alternate I	APR 2002
52.219-22	Small Disadvantaged Business Status	OCT 1999
52.222-22	Previous Contracts And Compliance Reports	FEB 1999
52.222-25	Affirmative Action Compliance	APR 1984
52.222-38	Compliance With Veterans' Employment Reporting Requirements	DEC 2001
52.223-4	Recovered Material Certification	OCT 1997
52.223-13	Certification of Toxic Chemical Release Reporting	AUG 2003
252.209-7001	Disclosure of Ownership or Control by the Government of a Terrorist Country	MAR 1998
252.209-7002	Disclosure Of Ownership Or Control By A Foreign Government	SEP 1994
252.247-7022	Representation Of Extent Of Transportation Of Supplies By Sea	AUG 1992

CLAUSES INCORPORATED BY FULL TEXT

52.203-2 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)

(a) The offeror certifies that—

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to –

(i) Those prices,

(ii) The intention to submit an offer, or

(iii) The methods of factors used to calculate the prices offered:

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory –

(1) Is the person in the offeror's organization responsible for determining the prices offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision _____ (insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization);

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision.

(c) If the offeror deletes or modifies subparagraph (a)(2) of this provision, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

(End of clause)

52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991)

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of this Certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that on or after December 23, 1989,--

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(1) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(End of provision)

52.204-3 TAXPAYER IDENTIFICATION (OCT 1998)

(a) Definitions.

“Common parent,” as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

“Taxpayer Identification Number (TIN),” as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting contract is subject to the payment reporting requirements described in Federal Acquisition Regulation (FAR) 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) Taxpayer Identification Number (TIN).

___ TIN: _____

___ TIN has been applied for.

___ TIN is not required because:

___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

___ Offeror is an agency or instrumentality of a foreign government;

___ Offeror is an agency or instrumentality of the Federal Government.

(e) Type of organization.

___ Sole proprietorship;

___ Partnership;

___ Corporate entity (not tax-exempt);

___ Corporate entity (tax-exempt);

___ Government entity (Federal, State, or local);

___ Foreign government;

___ International organization per 26 CFR 1.6049-4;

____ Other _____

(f) Common parent.

____ Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this provision.

____ Name and TIN of common parent:

Name _____

TIN _____

(End of provision)

52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (DEC 2001)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that-

(i) The Offeror and/or any of its Principals -

(A) Are () are not () presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have () have not (), within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are () are not () presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph (a)(1)(i)(B) of this provision.

(ii) The Offeror has () has not (), within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

This Certification Concerns a Matter Within the Jurisdiction of an Agency of the United States and the Making of a False, Fictitious, or Fraudulent Certification May Render the Maker Subject to Prosecution Under Section 1001, Title 18, United States Code.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a

determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (APR 2002) - ALTERNATE I (APR 2002)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is **236116**.

(2) The small business size standard is **\$28.5M**.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it () is, () is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it () is, () is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it () is, () is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it () is, () is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it () is, () is not a service-disabled veteran-owned small business concern.

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It () is, () is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It () is, () is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are

participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture:_____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(7) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

____ Black American.

____ Hispanic American.

____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

____ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

____ Individual/concern, other than one of the preceding.

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; or

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

52.219-22 SMALL DISADVANTAGED BUSINESS STATUS (OCT 1999)

(a) General. This provision is used to assess an offeror's small disadvantaged business status for the purpose of obtaining a benefit on this solicitation. Status as a small business and status as a small disadvantaged business for general statistical purposes is covered by the provision at FAR 52.219-1, Small Business Program Representation.

(b) Representations.

(1) General. The offeror represents, as part of its offer, that it is a small business under the size standard applicable to this acquisition; and either--

___ (i) It has received certification by the Small Business Administration as a small disadvantaged business concern consistent with 13 CFR 124, Subpart B; and

(A) No material change in disadvantaged ownership and control has occurred since its certification;

(B) Where the concern is owned by one or more disadvantaged individuals, the net worth of each individual upon whom the certification is based does not exceed \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(C) It is identified, on the date of this representation, as a certified small disadvantaged business concern in the database maintained by the Small Business Administration(PROONet); or

___ (ii) It has submitted a completed application to the Small Business Administration or a Private Certifier to be certified as a small disadvantaged business concern in accordance with 13 CFR 124, Subpart B, and a decision on that

application is pending, and that no material change in disadvantaged ownership and control has occurred since its application was submitted.

(2)___ For Joint Ventures. The offeror represents, as part of its offer, that it is a joint venture that complies with the requirements at 13 CFR 124.1002(f) and that the representation in paragraph (b)(1) of this provision is accurate for the small disadvantaged business concern that is participating in the joint venture. [The offeror shall enter the name of the small disadvantaged business concern that is participating in the joint venture: _____.]

(c) Penalties and Remedies. Anyone who misrepresents any aspects of the disadvantaged status of a concern for the purposes of securing a contract or subcontract shall:

- (1) Be punished by imposition of a fine, imprisonment, or both;
- (2) Be subject to administrative remedies, including suspension and debarment; and
- (3) Be ineligible for participation in programs conducted under the authority of the Small Business Act.

(End of provision)

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)

The offeror represents that --

- (a) () It has, () has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;
- (b) () It has, () has not, filed all required compliance reports; and
- (c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

52.222-25 AFFIRMATIVE ACTION COMPLIANCE (APR 1984)

The offeror represents that

- (a) [] it has developed and has on file, [] has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or
- (b) [] has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(End of provision)

52.222-38 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (DEC 2001)

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 38 U.S.C. 4212(d) (i.e., if it has any contract containing Federal Acquisition Regulation clause 52.222-37, Employment Reports on

Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans), it has submitted the most recent VETS-100 Report required by that clause.

(End of provision)

52.223-4 RECOVERED MATERIAL CERTIFICATION (OCT 1997)

As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6962(c)(3)(A)(i)), the offeror certifies, by signing this offer, that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by the applicable contract specifications.

(End of provision)

52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (AUG 2003)

(a) Executive Order 13148, of April 21, 2000, Greening the Government through Leadership in Environmental Management, requires submission of this certification as a prerequisite for contract award.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: (Check each block that is applicable.)

() (i) The facility does not manufacture, process, or otherwise use any toxic chemicals listed in 40 CFR 372.65;

() (ii) The facility does not have 10 or more full-time employees as specified in section 313.(b)(1)(A) of EPCRA 42 U.S.C. 11023(b)(1)(A);

() (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

() (iv) The facility does not fall within the following Standard Industrial Classification (SIC) codes or their corresponding North American Industry Classification System sectors:

(A) Major group code 10 (except 1011, 1081, and 1094.

(B) Major group code 12 (except 1241).

(C) Major group codes 20 through 39.

(D) Industry code 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce).

(E) Industry code 4953 (limited to facilities regulated under the Resource Conservation and Recovery Act, Subtitle C (42 U.S.C. 6921, et seq.), 5169, 5171, or 7389 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis); or

() (v) The facility is not located within the United States or its outlying areas.

(End of clause)

252.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) "Definitions."

As used in this provision --

(a) "Government of a terrorist country" includes the state and the government of a terrorist country, as well as any political subdivision, agency, or instrumentality thereof.

(2) "Terrorist country" means a country determined by the Secretary of State, under section 6(j)(1)(A) of the Export Administration Act of 1979 (50 U.S.C. App. 2405(j)(i)(A)), to be a country the government of which has repeatedly provided support for such acts of international terrorism. As of the date of this provision, terrorist countries include: Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria.

(3) "Significant interest" means --

(i) Ownership of or beneficial interest in 5 percent or more of the firm's or subsidiary's securities. Beneficial interest includes holding 5 percent or more of any class of the firm's securities in "nominee shares," "street names," or some other method of holding securities that does not disclose the beneficial owner;

(ii) Holding a management position in the firm, such as a director or officer;

(iii) Ability to control or influence the election, appointment, or tenure of directors or officers in the firm;

(iv) Ownership of 10 percent or more of the assets of a firm such as equipment, buildings, real estate, or other tangible assets of the firm; or

(v) Holding 50 percent or more of the indebtedness of a firm.

(b) "Prohibition on award."

In accordance with 10 U.S.C. 2327, no contract may be awarded to a firm or a subsidiary of a firm if the government of a terrorist country has a significant interest in the firm or subsidiary or, in the case of a subsidiary, the firm that owns the subsidiary, unless a waiver is granted by the Secretary of Defense.

(c) "Disclosure."

If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclose such interest in an attachment to its offer. If the Offeror is a subsidiary, it shall also disclose

any significant interest the government of a terrorist country has in any firm that owns or controls the subsidiary. The disclosure shall include --

(1) Identification of each government holding a significant interest; and

(2) A description of the significant interest held by each government.

(End of provision)

252.209-7002 DISCLOSURE OF OWNERSHIP OR CONTROL BY A FOREIGN GOVERNMENT (SEP 1994)

(a) Definitions. As used in this provision--

(1) "Entity controlled by a foreign government" means--

(i) Any domestic or foreign organization or corporation that is effectively owned or controlled by a foreign government; or

(ii) Any individual acting on behalf of a foreign government.

(2) "Effectively owned or controlled" means that a foreign government or any entity controlled by a foreign government has the power, either directly or indirectly, whether exercised or exercisable, to control or influence the election or appointment of the Offeror's officers, directors, partners, regents, trustees, or a majority of the Offeror's board of directors by means, e.g., ownership, contract, or operation of law.

(3) "Foreign government" means any governing body organized and existing under the laws of any country other than the United States and its possessions and trust territories and any agent or instrumentality of that government.

(4) "Proscribed information" means--

(i) Top Secret information;

(ii) Communications Security (COMSEC) information, except classified keys used to operate secure telephone units (STU IIIs);

(iii) Restricted Data as defined in the U.S. Atomic Energy Act of 1954, as amended;

(iv) Special Access Program (SAP) information; or

(v) Sensitive Compartmental Information (SCI).

(b) Prohibition on award. No contract under a national security program may be awarded to a company owned by an entity controlled by a foreign government if that company requires access to proscribed information to perform the contract, unless the Secretary of Defense or designee has waived application of 10 U.S.C.2536(a).

(c) Disclosure.

The Offeror shall disclose any interest a foreign government has in the Offeror when that interest constitutes control by a foreign government as defined in this provision. If the Offeror is a subsidiary, it shall also disclose any reportable interest a foreign government has in any entity that owns or controls the subsidiary, including reportable interest concerning the Offeror's immediate parent, intermediate parents, and the ultimate parent. Use separate paper as needed, and provide the information in the following format:

Offeror's Point of Contact for Questions about Disclosure
(Name and Phone Number with Country Code, City Code and Area Code, as applicable)

Name and Address of Offeror

Name and Address of Entity Controlled by a Foreign Government	Description of Interest, Ownership Percentage, and Identification of Foreign Government
--	---

(End of provision)

252.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term supplies is defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it:

____ (1) Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

____ (2) Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

SUBMIT THE FOLLOWING INFORMATION WITH YOUR OFFER
NOTICE TO OFFERORS REGARDING PRE-AWARD INFORMATION

It is requested that the following information be provided with your bid:

1. Company Name and Address: _____

2. Point of Contact:

Name: _____ Phone: (____) _____

Alt Phone: (____) _____ Fax: (____) _____

3. Electronic Transfer Payments will now be required for all new contracts. Do you currently receive Electronic Transfer Payments from this agency? (agency codes 00005524/00006482)

Yes() NO()

4. Name of Bank and Branch _____

Personal Banker _____

Telephone Number _____

Fax Number _____

5. Name of Bonding Agent Company _____

Agents Name _____

Telephone _____

END OF SECTION 00600

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CLAUSES INCORPORATED BY FULL TEXT

Successor Contracting Officers (52.201-4001)

The Contracting Officer who signed this contract is the primary Contracting Officer for the contract. Nevertheless, any Contracting Officer assigned to the Seattle District and acting within his/her authority may take formal action on this contract when a contract action needs to be taken and the primary Contracting Officer is unavailable.

52.202-1 DEFINITIONS (MAY 2001) --ALTERNATE I (MAR 2001)

(a) Agency head or head of the agency means the Secretary (Attorney General, Administrator, Governor, Chairperson, or other chief official, as appropriate) of the agency, unless otherwise indicated, including any deputy or assistant chief official of the executive agency.

(b) Commercial component means any component that is a commercial item.

(c) Component means any item supplied to the Government as part of an end item or of another component, except that for use in 52.225-9, and 52.225-11 see the definitions in 52.225-9(a) and 52.225-11(a).

(d) Contracting Officer means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(e) Nondevelopmental item means--

(1) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

(2) Any item described in paragraph (f)(1) of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or

(3) Any item of supply being produced that does not meet the requirements of paragraph (f)(1) or (f)(2) solely because the item is not yet in use.

(f) "Contracting Officer" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(g) Except as otherwise provided in this contract, the term "subcontracts" includes, but is not limited to, purchase orders and changes and modifications to purchase orders under this contract.

(End of clause)

52.203-3 GRATUITIES (APR 1984)

(a) The right of the Contractor to proceed may be terminated by written notice if, after notice and hearing, the agency head or a designee determines that the Contractor, its agent, or another representative--

- (1) Offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Government; and
- (2) Intended, by the gratuity, to obtain a contract or favorable treatment under a contract.
- (b) The facts supporting this determination may be reviewed by any court having lawful jurisdiction.
- (c) If this contract is terminated under paragraph (a) of this clause, the Government is entitled--
 - (1) To pursue the same remedies as in a breach of the contract; and
 - (2) In addition to any other damages provided by law, to exemplary damages of not less than 3 nor more than 10 times the cost incurred by the Contractor in giving gratuities to the person concerned, as determined by the agency head or a designee. (This subparagraph (c)(2) is applicable only if this contract uses money appropriated to the Department of Defense.)
- (d) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.203-5 COVENANT AGAINST CONTINGENT FEES (APR 1984)

- (a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.
- (b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by a contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee," as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

(End of clause)

52.203-6 RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT (JUL 1995)

- (a) Except as provided in (b) of this clause, the Contractor shall not enter into any agreement with an actual or prospective subcontractor, nor otherwise act in any manner, which has or may have the effect of restricting sales by

such subcontractors directly to the Government of any item or process (including computer software) made or furnished by the subcontractor under this contract or under any follow-on production contract.

(b) The prohibition in (a) of this clause does not preclude the Contractor from asserting rights that are otherwise authorized by law or regulation.

(c) The Contractor agrees to incorporate the substance of this clause, including this paragraph (c), in all subcontracts under this contract which exceed \$100,000.

52.203-7 ANTI-KICKBACK PROCEDURES. (JUL 1995)

(a) Definitions.

"Kickback," as used in this clause, means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided, directly or indirectly, to any prime Contractor, prime Contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a subcontract relating to a prime contract.

"Person," as used in this clause, means a corporation, partnership, business association of any kind, trust, joint-stock company, or individual.

"Prime contract," as used in this clause, means a contract or contractual action entered into by the United States for the purpose of obtaining supplies, materials, equipment, or services of any kind.

"Prime Contractor," as used in this clause, means a person who has entered into a prime contract with the United States.

"Prime Contractor employee," as used in this clause, means any officer, partner, employee, or agent of a prime Contractor.

"Subcontract," as used in this clause, means a contract or contractual action entered into by a prime Contractor or subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind under a prime contract.

"Subcontractor," as used in this clause, (1) means any person, other than the prime Contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract or a subcontract entered into in connection with such prime contract, and (2) includes any person who offers to furnish or furnishes general supplies to the prime Contractor or a higher tier subcontractor.

"Subcontractor employee," as used in this clause, means any officer, partner, employee, or agent of a subcontractor.

(b) The Anti-Kickback Act of 1986 (41 U.S.C. 51-58) (the Act), prohibits any person from -

(1) Providing or attempting to provide or offering to provide any kickback;

(2) Soliciting, accepting, or attempting to accept any kickback; or

(3) Including, directly or indirectly, the amount of any kickback in the contract price charged by a prime Contractor to the United States or in the contract price charged by a subcontractor to a prime Contractor or higher tier subcontractor.

(c)(1) The Contractor shall have in place and follow reasonable procedures designed to prevent and detect possible violations described in paragraph (b) of this clause in its own operations and direct business relationships.

(2) When the Contractor has reasonable grounds to believe that a violation described in paragraph (b) of this clause may have occurred, the Contractor shall promptly report in writing the possible violation. Such reports shall be made to the inspector general of the contracting agency, the head of the contracting agency if the agency does not have an inspector general, or the Department of Justice.

(3) The Contractor shall cooperate fully with any Federal agency investigating a possible violation described in paragraph (b) of this clause.

(4) The Contracting Officer may (i) offset the amount of the kickback against any monies owed by the United States under the prime contract and/or (ii) direct that the Prime Contractor withhold, from sums owed a subcontractor under the prime contract, the amount of any kickback. The Contracting Officer may order the monies withheld under subdivision (c)(4)(ii) of this clause be paid over to the Government unless the Government has already offset those monies under subdivision (c)(4)(i) of this clause. In either case, the Prime Contractor shall notify the Contracting Officer when the monies are withheld.

(5) The Contractor agrees to incorporate the substance of this clause, including this subparagraph (c)(5) but excepting subparagraph (c)(1), in all subcontracts under this contract which exceed \$100,000.

52.203-8 CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) If the Government receives information that a contractor or a person has engaged in conduct constituting a violation of subsection (a), (b), (c), or (d) of Section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423) (the Act), as amended by section 4304 of the 1996 National Defense Authorization Act for Fiscal Year 1996 (Pub. L. 104-106), the Government may--

(1) Cancel the solicitation, if the contract has not yet been awarded or issued; or

(2) Rescind the contract with respect to which--

(i) The Contractor or someone acting for the Contractor has been convicted for an offense where the conduct constitutes a violation of subsection 27(a) or (b) of the Act for the purpose of either--

(A) Exchanging the information covered by such subsections for anything of value; or

(B) Obtaining or giving anyone a competitive advantage in the award of a Federal agency procurement contract; or

(ii) The head of the contracting activity has determined, based upon a preponderance of the evidence, that the Contractor or someone acting for the Contractor has engaged in conduct constituting an offense punishable under subsections 27(e)(1) of the Act.

(b) If the Government rescinds the contract under paragraph (a) of this clause, the Government is entitled to recover, in addition to any penalty prescribed by law, the amount expended under the contract.

(c) The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law, regulation, or under this contract.

(End of clause)

52.203-10 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) The Government, at its election, may reduce the price of a fixed-price type contract and the total cost and fee under a cost-type contract by the amount of profit or fee determined as set forth in paragraph (b) of this clause if the head of the contracting activity or designee determines that there was a violation of subsection 27 (a), (b), or (c) of the Office of Federal Procurement Policy Act, as amended (41 U.S.C. 423), as implemented in section 3.104 of the Federal Acquisition Regulation.

(b) The price or fee reduction referred to in paragraph (a) of this clause shall be--

(1) For cost-plus-fixed-fee contracts, the amount of the fee specified in the contract at the time of award;

(2) For cost-plus-incentive-fee contracts, the target fee specified in the contract at the time of award, notwithstanding any minimum fee or "fee floor" specified in the contract;

(3) For cost-plus-award-fee contracts--

(i) The base fee established in the contract at the time of contract award;

(ii) If no base fee is specified in the contract, 30 percent of the amount of each award fee otherwise payable to the Contractor for each award fee evaluation period or at each award fee determination point.

(4) For fixed-price-incentive contracts, the Government may--

(i) Reduce the contract target price and contract target profit both by an amount equal to the initial target profit specified in the contract at the time of contract award; or

(ii) If an immediate adjustment to the contract target price and contract target profit would have a significant adverse impact on the incentive price revision relationship under the contract, or adversely affect the contract financing provisions, the Contracting Officer may defer such adjustment until establishment of the total final price of the contract. The total final price established in accordance with the incentive price revision provisions of the contract shall be reduced by an amount equal to the initial target profit specified in the contract at the time of contract award and such reduced price shall be the total final contract price.

(5) For firm-fixed-price contracts, by 10 percent of the initial contract price or a profit amount determined by the Contracting Officer from records or documents in existence prior to the date of the contract award.

(c) The Government may, at its election, reduce a prime contractor's price or fee in accordance with the procedures of paragraph (b) of this clause for violations of the Act by its subcontractors by an amount not to exceed the amount of profit or fee reflected in the subcontract at the time the subcontract was first definitively priced.

(d) In addition to the remedies in paragraphs (a) and (c) of this clause, the Government may terminate this contract for default. The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.203-12 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (JUN 2003)

(a) Definitions.

"Agency," as used in this clause, means executive agency as defined in 2.101.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

- (1) The awarding of any Federal contract.
- (2) The making of any Federal grant.
- (3) The making of any Federal loan.
- (4) The entering into of any cooperative agreement.
- (5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

- (1) An individual who is appointed to a position in the Government under Title 5, United States Code, including a position under a temporary appointment.
- (2) A member of the uniformed services, as defined in subsection 101(3), Title 37, United States Code.
- (3) A special Government employee, as defined in section 202, Title 18, United States Code.
- (4) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code, appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

State, as used in this clause, means a State of the United States, the District of Columbia, or an outlying area of the United States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions.

(1) Section 1352 of Title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(2) The Act also requires Contractors to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) Agency and legislative liaison by own employees.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(B) For purposes of subdivision (b)(3)(i)(A) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(C) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(D) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action--

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(E) Only those services expressly authorized by subdivision (b)(3)(i)(A) of this clause are permitted under this clause.

(ii) Professional and technical services.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of--

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(B) For purposes of subdivision (b)(3)(ii)(A) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(C) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(D) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(E) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(c) Disclosure.

(1) The Contractor who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(2) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes--

(i) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

(ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(iii) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(3) The Contractor shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding \$100,000 under the Federal contract.

(4) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding Contractor.

(d) Agreement. The Contractor agrees not to make any payment prohibited by this clause.

(e) Penalties.

(1) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(2) Contractors may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(f) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

(End of clause)

52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER (AUG 2000)

(a) Definitions. As used in this clause--

“Postconsumer material” means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of “recovered material.” For paper and paper products, postconsumer material means “postconsumer fiber” defined by the U.S. Environmental Protection Agency (EPA) as--

(1) Paper, paperboard, and fibrous materials from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item, including: used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards; and used cordage; or

(2) All paper, paperboard, and fibrous materials that enter and are collected from municipal solid waste; but not

(3) Fiber derived from printers' over-runs, converters' scrap, and over-issue publications.

“Printed or copied double-sided” means printing or reproducing a document so that information is on both sides of a sheet of paper.

“Recovered material,” for paper and paper products, is defined by EPA in its Comprehensive Procurement Guideline as “recovered fiber” and means the following materials:

(1) Postconsumer fiber; and

(2) Manufacturing wastes such as--

(i) Dry paper and paperboard waste generated after completion of the papermaking process (that is, those manufacturing operations up to and including the cutting and trimming of the paper machine reel into smaller rolls or rough sheets) including: envelope cuttings, bindery trimmings, and other paper and paperboard waste resulting from printing, cutting, forming, and other converting operations; bag, box, and carton manufacturing wastes; and butt rolls, mill wrappers, and rejected unused stock; and

(ii) Repulped finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others.

(b) In accordance with Section 101 of Executive Order 13101 of September 14, 1998, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, the Contractor is encouraged to submit paper documents, such as offers, letters, or reports, that are printed or copied double-sided on recycled paper that meet minimum content standards specified in Section 505 of Executive Order 13101, when not using electronic commerce methods to submit information or data to the Government.

(c) If the Contractor cannot purchase high-speed copier paper, offset paper, forms bond, computer printout paper, carbonless paper, file folders, white wove envelopes, writing and office paper, book paper, cotton fiber paper, and cover stock meeting the 30 percent postconsumer material standard for use in submitting paper documents to the Government, it should use paper containing no less than 20 percent postconsumer material. This lesser standard should be used only when paper meeting the 30 percent postconsumer material standard is not obtainable at a reasonable price or does not meet reasonable performance standards.

(End of clause)

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)

(a) The Government suspends or debar Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of the \$25,000 with a Contractor that is debarred, suspended, or proposed for debarment unless there is a compelling reason to do so.

(b) The Contractor shall require each proposed first-tier subcontractor, whose subcontract will exceed \$25,000, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its principles, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(c) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs). The notice must include the following:

(1) The name of the subcontractor.

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

52.212-4007 ENVIRONMENTAL LITIGATION

(a) If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the "Suspension of Work" clause of this contract. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

(b) The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantially or procedurally, the effect of the work on the environment.

52.215-2 AUDIT AND RECORDS--NEGOTIATION (JUN 1999)

(a) As used in this clause, "records" includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

(b) Examination of costs. If this is a cost-reimbursement, incentive, time-and-materials, labor-hour, or price redeterminable contract, or any combination of these, the Contractor shall maintain and the Contracting Officer, or an authorized representative of the Contracting Officer, shall have the right to examine and audit all records and other evidence sufficient to reflect properly all costs claimed to have been incurred or anticipated to be incurred directly or indirectly in performance of this contract. This right of examination shall include inspection at all reasonable times of the Contractor's plants, or parts of them, engaged in performing the contract.

(c) Cost or pricing data. If the Contractor has been required to submit cost or pricing data in connection with any pricing action relating to this contract, the Contracting Officer, or an authorized representative of the Contracting Officer, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data, shall have the right to examine and audit all of the Contractor's records, including computations and projections, related to--

- (1) The proposal for the contract, subcontract, or modification;
- (2) The discussions conducted on the proposal(s), including those related to negotiating;
- (3) Pricing of the contract, subcontract, or modification; or
- (4) Performance of the contract, subcontract or modification.

(d) Comptroller General--(1) The Comptroller General of the United States, or an authorized representative, shall have access to and the right to examine any of the Contractor's directly pertinent records involving transactions related to this contract or a subcontract hereunder.

(2) This paragraph may not be construed to require the Contractor or subcontractor to create or maintain any record that the Contractor or subcontractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e) Reports. If the Contractor is required to furnish cost, funding, or performance reports, the Contracting Officer or an authorized representative of the Contracting Officer shall have the right to examine and audit the supporting records and materials, for the purpose of evaluating (1) the effectiveness of the Contractor's policies and procedures to produce data compatible with the objectives of these reports and (2) the data reported.

(f) Availability. The Contractor shall make available at its office at all reasonable times the records, materials, and other evidence described in paragraphs (a), (b), (c), (d), and (e) of this clause, for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in Subpart 4.7, Contractor Records Retention, of the Federal Acquisition Regulation (FAR), or for any longer period required by statute or by other clauses of this contract. In addition--

- (1) If this contract is completely or partially terminated, the Contractor shall make available the records relating to the work terminated until 3 years after any resulting final termination settlement; and
- (2) The Contractor shall make available records relating to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to this contract until such appeals, litigation, or claims are finally resolved.

(g) The Contractor shall insert a clause containing all the terms of this clause, including this paragraph (g), in all subcontracts under this contract that exceed the simplified acquisition threshold, and--

(1) That are cost-reimbursement, incentive, time-and-materials, labor-hour, or price-redeterminable type or any combination of these;

(2) For which cost or pricing data are required; or

(3) That require the subcontractor to furnish reports as discussed in paragraph (e) of this clause.

The clause may be altered only as necessary to identify properly the contracting parties and the Contracting Officer under the Government prime contract.

(End of clause)

52.215-8 ORDER OF PRECEDENCE--UNIFORM CONTRACT FORMAT (OCT 1997)

Any inconsistency in this solicitation or contract shall be resolved by giving precedence in the following order:

(a) The Schedule (excluding the specifications).

(b) Representations and other instructions.

(c) Contract clauses.

(d) Other documents, exhibits, and attachments.

(e) The specifications.

(End of clause)

52.215-11 PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) This clause shall become operative only for any modification to this contract involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, except that this clause does not apply to any modification if an exception under FAR 15.403-1 applies.

(b) If any price, including profit or fee, negotiated in connection with any modification under this clause, or any cost reimbursable under this contract, was increased by any significant amount because (1) the Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data, (2) a subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data, or (3) any of these parties furnished data of any description that were not accurate, the price or cost shall be reduced accordingly and the contract shall be modified to reflect the reduction. This right to a price reduction is limited to that resulting from defects in data relating to modifications for which this clause becomes operative under paragraph (a) of this clause.

(c) Any reduction in the contract price under paragraph (b) of this clause due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which--

(1) The actual subcontract; or

(2) The actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

(d)(1) If the Contracting Officer determines under paragraph (b) of this clause that a price or cost reduction should be made, the Contractor agrees not to raise the following matters as a defense:

(i) The Contractor or subcontractor was a sole source supplier or otherwise was in a superior bargaining position and thus the price of the contract would not have been modified even if accurate, complete, and current cost or pricing data had been submitted.

(ii) The Contracting Officer should have known that the cost or pricing data in issue were defective even though the Contractor or subcontractor took no affirmative action to bring the character of the data to the attention of the Contracting Officer.

(iii) The contract was based on an agreement about the total cost of the contract and there was no agreement about the cost of each item procured under the contract.

(iv) The Contractor or subcontractor did not submit a Certificate of Current Cost or Pricing Data.

(2)(i) Except as prohibited by subdivision (d)(2)(ii) of this clause, an offset in an amount determined appropriate by the Contracting Officer based upon the facts shall be allowed against the amount of a contract price reduction if--

(A) The Contractor certifies to the Contracting Officer that, to the best of the Contractor's knowledge and belief, the Contractor is entitled to the offset in the amount requested; and

(B) The Contractor proves that the cost or pricing data were available before the "as of" date specified on its Certificate of Current Cost or Pricing Data, and that the data were not submitted before such date.

(ii) An offset shall not be allowed if--

(A) The understated data were known by the Contractor to be understated before the "as of" date specified on its Certificate of Current Cost or Pricing Data; or

(B) The Government proves that the facts demonstrate that the contract price would not have increased in the amount to be offset even if the available data had been submitted before the "as of" date specified on its Certificate of Current Cost or Pricing Data.

(e) If any reduction in the contract price under this clause reduces the price of items for which payment was made prior to the date of the modification reflecting the price reduction, the Contractor shall be liable to and shall pay the United States at the time such overpayment is repaid--

(1) Simple interest on the amount of such overpayment to be computed from the date(s) of overpayment to the Contractor to the date the Government is repaid by the Contractor at the applicable underpayment rate effective for each quarter prescribed by the Secretary of the Treasury under 26 U.S.C. 6621(a)(2); and

A penalty equal to the amount of the overpayment, if the Contractor or subcontractor knowingly submitted cost or pricing data that were incomplete, inaccurate, or noncurrent.

(End of clause)

52.215-13 SUBCONTRACTOR COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) The requirements of paragraphs (b) and (c) of this clause shall--

(1) Become operative only for any modification to this contract involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4; and

(2) Be limited to such modifications.

(b) Before awarding any subcontract expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, on the date of agreement on price or the date of award, whichever is later; or before pricing any subcontract modification involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, the Contractor shall require the subcontractor to submit cost or pricing data (actually or by specific identification in writing), unless an exception under FAR 15.403-1 applies.

(c) The Contractor shall require the subcontractor to certify in substantially the form prescribed in FAR 15.406-2 that, to the best of its knowledge and belief, the data submitted under paragraph (b) of this clause were accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract modification.

The Contractor shall insert the substance of this clause, including this paragraph (d), in each subcontract that exceeds the threshold for submission of cost or pricing data at FAR 15.403-4 on the date of agreement on price or the date of award, whichever is later.

(End of clause)

52.215-19 NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

(a) The Contractor shall make the following notifications in writing:

(1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.

(2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall--

(1) Maintain current, accurate, and complete inventory records of assets and their costs;

(2) Provide the ACO or designated representative ready access to the records upon request;

(3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and

(4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

(End of clause)

52.215-19 NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

(a) The Contractor shall make the following notifications in writing:

(1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.

(2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall--

(1) Maintain current, accurate, and complete inventory records of assets and their costs;

(2) Provide the ACO or designated representative ready access to the records upon request;

(3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and

(4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

(End of clause)

52.215-21 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) Exceptions from cost or pricing data. (1) In lieu of submitting cost or pricing data for modifications under this contract, for price adjustments expected to exceed the threshold set forth at FAR 15.403-4 on the date of the agreement on price or the date of the award, whichever is later, the Contractor may submit a written request for exception by submitting the information described in the following subparagraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable--

(i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.

(ii) Information on modifications of contracts or subcontracts for commercial items. (A) If--

(1) The original contract or subcontract was granted an exception from cost or pricing data requirements because the price agreed upon was based on adequate price competition or prices set by law or regulation, or was a contract or subcontract for the acquisition of a commercial item; and

(2) The modification (to the contract or subcontract) is not exempted based on one of these exceptions, then the

Contractor may provide information to establish that the modification would not change the contract or subcontract from a contract or subcontract for the acquisition of a commercial item to a contract or subcontract for the acquisition of an item other than a commercial item.

(B) For a commercial item exception, the Contractor shall provide, at a minimum, information on prices at which the same item or similar items have previously been sold that is adequate for evaluating the reasonableness of the price of the modification. Such information may include--

(1) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities.

(2) For market-priced items, the source and date or period of the market quotation or other basis for market price, the base amount, and applicable discounts. In addition, describe the nature of the market.

(3) For items included on an active Federal Supply Service Multiple Award Schedule contract, proof that an exception has been granted for the schedule item.

(2) The Contractor grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this clause, and the reasonableness of price. For items priced using catalog or market prices, or law or regulation, access does not extend to cost or profit information or other data relevant solely to the Contractor's determination of the prices to be offered in the catalog or marketplace.

(b) Requirements for cost or pricing data. If the Contractor is not granted an exception from the requirement to submit cost or pricing data, the following applies:

(1) The Contractor shall submit cost or pricing data and supporting attachments in accordance with Table 15-2 of FAR 15.408.

As soon as practicable after agreement on price, but before award (except for unpriced actions), the Contractor shall submit a Certificate of Current Cost or Pricing Data, as prescribed by FAR 15.406-2.

(End of clause)

52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within **ten (10) days before completion of the contract**; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least **sixty (60)** days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed **720 calendar days**.

(End of clause)

52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)

(a) Definition. HUBZone small business concern, as used in this clause, means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

(b) Evaluation preference. (1) Offers will be evaluated by adding a factor of 10 percent to the price of all offers, except-

(i) Offers from HUBZone small business concerns that have not waived the evaluation preference;

(ii) Otherwise successful offers from small business concerns;

(iii) Otherwise successful offers of eligible products under the Trade Agreements Act when the dollar threshold for application of the Act is exceeded (see 25.402 of the Federal Acquisition Regulation (FAR)); and

(iv) Otherwise successful offers where application of the factor would be inconsistent with a Memorandum of Understanding or other international agreement with a foreign government.

(2) The factor of 10 percent shall be applied on a line item basis or to any group of items on which award may be made. Other evaluation factors described in the solicitation shall be applied before application of the factor.

(3) A concern that is both a HUBZone small business concern and a small disadvantaged business concern will receive the benefit of both the HUBZone small business price evaluation preference and the small disadvantaged business price evaluation adjustment (see FAR clause 52.219-23). Each applicable price evaluation preference or adjustment shall be calculated independently against an offeror's base offer.

These individual preference amounts shall be added together to arrive at the total evaluated price for that offer.

(c) Waiver of evaluation preference. A HUBZone small business concern may elect to waive the evaluation preference, in which case the factor will be added to its offer for evaluation purposes. The agreements in paragraph (d) of this clause do not apply if the offeror has waived the evaluation preference.

___ Offeror elects to waive the evaluation preference.

(d) Agreement. A HUBZone small business concern agrees that in the performance of the contract, in the case of a contract for

(1) Services (except construction), at least 50 percent of the cost of personnel for contract performance will be spent for employees of the concern or employees of other HUBZone small business concerns;

(2) Supplies (other than procurement from a nonmanufacturer of such supplies), at least 50 percent of the cost of manufacturing, excluding the cost of materials, will be performed by the concern or other HUBZone small business concerns;

(3) General construction, at least 15 percent of the cost of the contract performance incurred for personnel will be will be spent on the concern's employees or the employees of other HUBZone small business concerns; or

(4) Construction by special trade contractors, at least 25 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns.

(e) A HUBZone joint venture agrees that in the performance of the contract, the applicable percentage specified in paragraph (d) of this clause will be performed by the HUBZone small business participant or participants.

(f) A HUBZone small business concern nonmanufacturer agrees to furnish in performing this contract only end items manufactured or produced by HUBZone small business manufacturer concerns. This paragraph does not apply in connection with construction or service contracts.

(End of clause)

52.219-8 UTILIZATION OF SMALL BUSINESS CONCERNS (OCT 2000)

(a) It is the policy of the United States that small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns shall have the maximum practicable opportunity to participate in performing contracts let by any Federal agency, including contracts and subcontracts for subsystems, assemblies, components, and related services for major systems. It is further the policy of the United States that its prime contractors establish procedures to ensure the timely payment of amounts due pursuant to the terms of their subcontracts with small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns.

(b) The Contractor hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with efficient contract performance. The Contractor further agrees to cooperate in any studies or surveys as may be conducted by the United States Small Business Administration or the awarding agency of the United States as may be necessary to determine the extent of the Contractor's compliance with this clause.

Definitions. As used in this contract--

HUBZone small business concern means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

Small business concern means a small business as defined pursuant to Section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto.

Small disadvantaged business concern means a small business concern that represents, as part of its offer that--

(1) It has received certification as a small disadvantaged business concern consistent with 13 CFR part 124, subpart B;

- (2) No material change in disadvantaged ownership and control has occurred since its certification;
- (3) Where the concern is owned by one or more individuals, the net worth of each individual upon whom the certification is based does not exceed \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and
- (4) It is identified, on the date of its representation, as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net).

Veteran-owned small business concern means a small business concern--

- (1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and
- (2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern--

- (1) That is at least 51 percent owned by one or more women, or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and
 - (2) Whose management and daily business operations are controlled by one or more women.
- (d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a small business concern, a veteran-owned small business concern, a service-disabled veteran-owned small business concern, a HUBZone small business concern, a small disadvantaged business concern, or a women-owned small business concern.

(End of clause)

52.219-9 SMALL BUSINESS SUBCONTRACTING PLAN (JAN 2002)

- (a) This clause does not apply to small business concerns.
- (b) Definitions. As used in this clause--

Commercial item means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

Commercial plan means a subcontracting plan (including goals) that covers the offeror's fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (e.g., division, plant, or product line).

Individual contract plan means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in support of the specific contract, except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

Master plan means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

Subcontract means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) The offeror, upon request by the Contracting Officer, shall submit and negotiate a subcontracting plan, where applicable, that separately addresses subcontracting with small business, veteran-owned small business, HUBZone small business concerns, small disadvantaged business, and women-owned small business concerns. If the offeror is submitting an individual contract plan, the plan must separately address subcontracting with small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns, with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be negotiated within the time specified by the Contracting Officer. Failure to submit and negotiate the subcontracting plan shall make the offeror ineligible for award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of--

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror's total projected sales, expressed in dollars, and the total value of projected subcontracts to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns;

(iii) Total dollars planned to be subcontracted to veteran-owned small business concerns;

(iv) Total dollars planned to be subcontracted to HUBZone small business concerns;

(v) Total dollars planned to be subcontracted to small disadvantaged business concerns; and

(vi) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to--

(i) Small business concerns;

(ii) Veteran-owned small business concerns;

(iii) HUBZone small business concerns;

(iv) Small disadvantaged business concerns; and

(v) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d)(1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration (SBA), veterans service organizations, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone, small disadvantaged, and women-owned small business trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for the purposes of maintaining a small, veteran-owned small, HUBZone small, small disadvantaged, and women-owned small business source list. Use of PRO-Net as its source list does not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, or publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with—

- (i) Small business concerns;
- (ii) Veteran-owned small business concerns;
- (iii) HUBZone small business concerns;
- (iv) Small disadvantaged business concerns; and
- (v) Women-owned small business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, veteran-owned small business, HUBZone small business, small disadvantaged business and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled "Utilization of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) that receive subcontracts in excess of \$500,000 (\$1,000,000 for construction of any public facility) to adopt a subcontracting plan that complies with the requirements of this clause.

(10) Assurances that the offeror will--

- (i) Cooperate in any studies or surveys as may be required;
- (ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;
- (iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with paragraph (j) of this clause. The reports shall provide information on subcontract awards to small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, small disadvantaged business concerns, women-owned small business concerns, and Historically Black Colleges and Universities and Minority Institutions. Reporting shall be in accordance with the instructions on the forms or as provided in agency regulations.
- (iv) Ensure that its subcontractors agree to submit SF 294 and SF 295.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the

offeror's efforts to locate small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated)

(i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small business, veteran-owned small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than \$100,000, indicating--

(A) Whether small business concerns were solicited and, if not, why not;

(B) Whether veteran-owned small business concerns were solicited and, if not, why not;

(C) Whether HUBZone small business concerns were solicited and, if not, why not;

(D) Whether small disadvantaged business concerns were solicited and, if not, why not;

(E) Whether women-owned small business concerns were solicited and, if not, why not; and

(F) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact--

(A) Trade associations;

(B) Business development organizations;

(C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged, and women-owned small business sources; and

(D) Veterans service organizations.

(v) Records of internal guidance and encouragement provided to buyers through--

(A) Workshops, seminars, training, etc.; and

(B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business, veteran-owner small business, HUBZone small business, small disadvantaged

business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all "make-or-buy" decisions.

(3) Counsel and discuss subcontracting opportunities with representatives of small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.

(4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small, veteran-owner small business, HUBZone small, small disadvantaged, or women-owned small business for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor's subcontracting plan.

(f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided--

(1) the master plan has been approved, (2) the offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer, and (3) goals and any deviations from the master plan deemed necessary by the Contracting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial plan shall relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with (1) the clause of this contract entitled "Utilization Of Small Business Concerns," or (2) an approved plan required by this clause, shall be a material breach of the contract.

(j) The Contractor shall submit the following reports:

(1) Standard Form 294, Subcontracting Report for Individual Contracts. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) Standard Form 295, Summary Subcontract Report. This report encompasses all of the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by North American Industry Classification System (NAICS) Industry Subsector. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant NAICS Industry Subsector and report all awards to that subcontractor under its predominant NAICS Industry Subsector.

(End of clause)

52.219-14 LIMITATIONS ON SUBCONTRACTING (DEC 1996)

- (a) This clause does not apply to the unrestricted portion of a partial set-aside.
- (b) By submission of an offer and execution of a contract, the Offeror/Contractor agrees that in performance of the contract in the case of a contract for--
 - (1) Services (except construction). At least 50 percent of the cost of contract performance incurred for personnel shall be expended for employees of the concern.
 - (2) Supplies (other than procurement from a nonmanufacturer of such supplies). The concern shall perform work for at least 50 percent of the cost of manufacturing the supplies, not including the cost of materials.
 - (3) General construction. The concern will perform at least 15 percent of the cost of the contract, not including the cost of materials, with its own employees.
 - (4) Construction by special trade contractors. The concern will perform at least 25 percent of the cost of the contract, not including the cost of materials, with its own employees.

52.219-16 LIQUIDATED DAMAGES-SUBCONTRACTING PLAN (JAN 1999)

- (a) Failure to make a good faith effort to comply with the subcontracting plan, as used in this clause, means a willful or intentional failure to perform in accordance with the requirements of the subcontracting plan approved under the clause in this contract entitled "Small Business Subcontracting Plan," or willful or intentional action to frustrate the plan.
- (b) Performance shall be measured by applying the percentage goals to the total actual subcontracting dollars or, if a commercial plan is involved, to the pro rata share of actual subcontracting dollars attributable to Government contracts covered by the commercial plan. If, at contract completion or, in the case of a commercial plan, at the close of the fiscal year for which the plan is applicable, the Contractor has failed to meet its subcontracting goals and the Contracting Officer decides in accordance with paragraph (c) of this clause that the Contractor failed to make a good faith effort to comply with its subcontracting plan, established in accordance with the clause in this contract entitled "Small Business Subcontracting Plan," the Contractor shall pay the Government liquidated damages in an amount stated. The amount of probable damages attributable to the Contractor's failure to comply shall be an amount equal to the actual dollar amount by which the Contractor failed to achieve each subcontract goal.
- (c) Before the Contracting Officer makes a final decision that the Contractor has failed to make such good faith effort, the Contracting Officer shall give the Contractor written notice specifying the failure and permitting the Contractor to demonstrate what good faith efforts have been made and to discuss the matter. Failure to respond to the notice may be taken as an admission that no valid explanation exists. If, after consideration of all the pertinent data, the Contracting Officer finds that the Contractor failed to make a good faith effort to comply with the subcontracting plan, the Contracting Officer shall issue a final decision to that effect and require that the Contractor pay the Government liquidated damages as provided in paragraph (b) of this clause.
- (d) With respect to commercial plans, the Contracting Officer who approved the plan will perform the functions of the Contracting Officer under this clause on behalf of all agencies with contracts covered by the commercial plan.
- (e) The Contractor shall have the right of appeal, under the clause in this contract entitled Disputes, from any final decision of the Contracting Officer.
- (f) Liquidated damages shall be in addition to any other remedies that the Government may have.

(End of clause)

52.219-25 SMALL DISADVANTAGED BUSINESS PARTICIPATION PROGRAM—DISADVANTAGED STATUS AND REPORTING (OCT 1999)

(a) Disadvantaged status for joint venture partners, team members, and subcontractors. This clause addresses disadvantaged status for joint venture partners, teaming arrangement members, and subcontractors and is applicable if this contract contains small disadvantaged business (SDB) participation targets. The Contractor shall obtain representations of small disadvantaged status from joint venture partners, teaming arrangement members, and subcontractors through use of a provision substantially the same as paragraph (b)(1)(i) of the provision at FAR 52.219-22, Small Disadvantaged Business Status. The Contractor shall confirm that a joint venture partner, team member, or subcontractor representing itself as a small disadvantaged business concern, is identified as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net) or by contacting the SBA's Office of Small Disadvantaged Business Certification and Eligibility.

(b) Reporting requirement. If this contract contains SDB participation targets, the Contractor shall report on the participation of SDB concerns at contract completion, or as otherwise provided in this contract. Reporting may be on Optional Form 312, Small Disadvantaged Business Participation Report, or in the Contractor's own format providing the same information. This report is required for each contract containing SDB participation targets. If this contract contains an individual Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan, reports may be submitted with the final Subcontracting Report for Individual Contracts (Standard Form 294) at the completion of the contract.

(End of clause)

52.222-1 NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (FEB 1997)

If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the Contracting Officer.

(End of clause)

52.222-3 CONVICT LABOR (JUN 2003)

(a) Except as provided in paragraph (b) of this clause, the Contractor shall not employ in the performance of this contract any person undergoing a sentence of imprisonment imposed by any court of a State, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, or the U.S. Virgin Islands.

(b) The Contractor is not prohibited from employing persons--

(1) On parole or probation to work at paid employment during the term of their sentence;

(2) Who have been pardoned or who have served their terms; or

(3) Confined for violation of the laws of any of the States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, or the U.S. Virgin Islands who are authorized to work at paid employment in the community under the laws of such jurisdiction, if--

- (i) The worker is paid or is in an approved work training program on a voluntary basis;
- (ii) Representatives of local union central bodies or similar labor union organizations have been consulted;
- (iii) Such paid employment will not result in the displacement of employed workers, or be applied in skills, crafts, or trades in which there is a surplus of available gainful labor in the locality, or impair existing contracts for services;
- (iv) The rates of pay and other conditions of employment will not be less than those paid or provided for work of a similar nature in the locality in which the work is being performed; and
- (v) The Attorney General of the United States has certified that the work-release laws or **regulations** of the jurisdiction involved are in conformity with the requirements of Executive Order 11755, as amended by Executive Orders 12608 and 12943.

(End of clause)

52.222-4 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION. (SEP 2000)

- (a) Overtime requirements. No Contractor or subcontractor employing laborers or mechanics (see Federal Acquisition Regulation 22.300) shall require or permit them to work over 40 hours in any workweek unless they are paid at least 1 and 1/2 times the basic rate of pay for each hour worked over 40 hours.
- (b) Violation; liability for unpaid wages; liquidated damages. The responsible Contractor and subcontractor are liable for unpaid wages if they violate the terms in paragraph (a) of this clause. In addition, the Contractor and subcontractor are liable for liquidated damages payable to the Government. The Contracting Officer will assess liquidated damages at the rate of \$10 per affected employee for each calendar day on which the employer required or permitted the employee to work in excess of the standard workweek of 40 hours without paying overtime wages required by the Contract Work Hours and Safety Standards Act.
- (c) Withholding for unpaid wages and liquidated damages. The Contracting Officer will withhold from payments due under the contract sufficient funds required to satisfy any Contractor or subcontractor liabilities for unpaid wages and liquidated damages. If amounts withheld under the contract are insufficient to satisfy Contractor or subcontractor liabilities, the Contracting Officer will withhold payments from other Federal or Federally assisted contracts held by the same Contractor that are subject to the Contract Work Hours and Safety Standards Act.
- (d) Payrolls and basic records.
 - (1) The Contractor and its subcontractors shall maintain payrolls and basic payroll records for all laborers and mechanics working on the contract during the contract and shall make them available to the Government until 3 years after contract completion. The records shall contain the name and address of each employee, social security number, labor classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. The records need not duplicate those required for construction work by Department of Labor regulations at 29 CFR 5.5(a)(3) implementing the Davis -Bacon Act.
 - (2) The Contractor and its subcontractors shall allow authorized representatives of the Contracting Officer or the Department of Labor to inspect, copy, or transcribe records maintained under paragraph (d)(1) of this clause. The Contractor or subcontractor also shall allow authorized representatives of the Contracting Officer or Department of Labor to interview employees in the workplace during working hours.

(e) Subcontracts. The Contractor shall insert the provisions set forth in paragraphs (a) through (d) of this clause in subcontracts exceeding \$100,000 and require subcontractors to include these provisions in any lower tier subcontracts. The Contractor shall be responsible for compliance by any subcontractor or lower-tier subcontractor with the provisions set forth in paragraphs (a) through (d) of this clause.

(End of clause)

52.222-6 DAVIS-BACON ACT (FEB 1995)

(a) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (d) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such period. Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled Apprentices and Trainees. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (b) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b)(1) The Contracting Officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

- (i) The work to be performed by the classification requested is not performed by a classification in the wage determination.
- (ii) The classification is utilized in the area by the construction industry.
- (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator or an authorized representative will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Contractor, the laborers or mechanics to be employed in the classification, or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (b)(2) and (b)(3) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(2) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis -Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(End of clause)

52.222-7 WITHHOLDING OF FUNDS (FEB 1988)

The Contracting Officer shall, upon his or her own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally assisted contract subject to Davis -Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(End of clause)

52.222-8 PAYROLLS AND BASIC RECORDS (FEB 1988)

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis -Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under paragraph (d) of the clause entitled Davis -Bacon Act, that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section

1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify--

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Contractor or subcontractor shall permit the Contracting Officer or representatives of the Contracting Officer or the Department of Labor to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(End of clause)

(a) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(c) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(End of clause)

52.222-10 COMPLIANCE WITH COPELAND ACT REQUIREMENTS (FEB 1988)

The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(End of clause)

52.222-11 SUBCONTRACTS (LABOR STANDARDS (FEB 1988)

(a) The Contractor or subcontractor shall insert in any subcontracts the clauses entitled Davis -Bacon Act, Contract Work Hours and Safety Standards Act-Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of Funds, Subcontracts (Labor Standards), Contract Termination-Debarment, Disputes Concerning Labor Standards, Compliance with Davis -Bacon and Related Act Regulations, and Certification of Eligibility, and such other clauses as the Contracting Officer may, by appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited in this paragraph.

(b)(1) Within 14 days after award of the contract, the Contractor shall deliver to the Contracting Officer a completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the subcontractor's signed and dated acknowledgment that the clauses set forth in paragraph (a) of this clause have been included in the subcontract.

(ii) Within 14 days after the award of any subsequently awarded subcontract the Contractor shall deliver to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

(End of clause)

52.222-12 CONTRACT TERMINATION--DEBARMENT (FEB 1988)

A breach of the contract clauses entitled Davis -Bacon Act, Contract Work Hours and Safety Standards Act--Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Subcontracts (Labor Standards), Compliance with Davis -Bacon and Related Act Regulations, or Certification of Eligibility may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 CFR 5.12.

(End of clause)

52.222-13 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS (FEB 1988)

All rulings and interpretations of the Davis -Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are hereby incorporated by reference in this contract.

(End of clause)

52.222-14 DISPUTES CONCERNING LABOR STANDARDS (FEB 1988)

The United States Department of Labor has set forth in 29 CFR Parts 5, 6, and 7 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(End of clause)

52.222-15 CERTIFICATION OF ELIGIBILITY (FEB 1988)

(a) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(End of clause)

52.222-21 PROHIBITION OF SEGREGATED FACILITIES (FEB 1999)

(a) Segregated facilities, as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

(End of clause)

52.222-26 EQUAL OPPORTUNITY (APR 2002)

(a) Definition. United States, as used in this clause, means the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.

(b) If, during any 12-month period (including the 12 months preceding the award of this contract), the Contractor has been or is awarded nonexempt Federal contracts and/or subcontracts that have an aggregate value in excess of \$10,000, the Contractor shall comply with paragraphs (b)(1) through (b)(11) of this clause, except for work performed outside the United States by employees who were not recruited within the United States. Upon request, the Contractor shall provide information necessary to determine the applicability of this clause.

(1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. However, it shall not be a violation of this clause for the Contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation, in connection with employment opportunities on or near an Indian reservation, as permitted by 41 CFR 60-1.5.

(2) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to, (i) employment, (ii) upgrading, (iii) demotion, (iv) transfer, (v) recruitment or recruitment advertising, (vi) layoff or termination, (vii) rates of pay or other forms of compensation, and (viii) selection for training, including apprenticeship.

(3) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(4) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(5) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(6) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(7) The Contractor shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor. The Contractor shall also file Standard Form 100 (EEO-1), or any successor form, as prescribed in 41 CFR part 60-1. Unless the Contractor has filed within the 12 months preceding the date of contract award, the Contractor shall, within 30 days after contract award, apply to either the regional Office of Federal Contract Compliance Programs (OFCCP) or the local office of the Equal Employment Opportunity Commission for the necessary forms.

(8) The Contractor shall permit access to its premises, during normal business hours, by the contracting agency or the OFCCP for the purpose of conducting on-site compliance evaluations and complaint investigations. The Contractor shall permit the Government to inspect and copy any books, accounts, records (including computerized records), and other material that may be relevant to the matter under investigation and pertinent to compliance with Executive Order 11246, as amended, and rules and regulations that implement the Executive Order.

(9) If the OFCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended; in the rules, regulations, and orders of the Secretary of Labor; or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of subparagraphs (b)(1) through (11) of this clause in

every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor.

(11) The Contractor shall take such action with respect to any subcontract or purchase order as the contracting officer may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(c) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

(End of clause)

52.222-27 AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (FEB 1999)

(a) Definitions. "Covered area," as used in this clause, means the geographical area described in the solicitation for this contract.

"Deputy Assistant Secretary," as used in this clause, means Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, or a designee.

"Employer's identification number," as used in this clause, means the Federal Social Security number used on the employer's quarterly federal tax return, U.S. Treasury Department Form 941.

"Minority," as used in this clause, means--

(1) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);

(3) Black (all persons having origins in any of the black African racial groups not of Hispanic origin); and

(4) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).

(b) If the Contractor, or a subcontractor at any tier, subcontracts a portion of the work involving any construction trade, each such subcontract in excess of \$10,000 shall include this clause and the Notice containing the goals for minority and female participation stated in the solicitation for this contract.

(c) If the Contractor is participating in a Hometown Plan (41 CFR 60-4) approved by the U.S. Department of Labor in a covered area, either individually or through an association, its affirmative action obligations on all work in the plan area (including goals) shall comply with the plan for those trades that have unions participating in the plan. Contractors must be able to demonstrate participation in, and compliance with, the provisions of the plan. Each Contractor or subcontractor participating in an approved plan is also required to comply with its obligations under the Equal Opportunity clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good-faith performance by other Contractors or subcontractors toward a goal in an approved plan does not excuse any Contractor's or subcontractor's failure to make good-faith efforts to achieve

the plan's goals.

(d) The Contractor shall implement the affirmative action procedures in subparagraphs (g)(1) through (16) of this clause. The goals stated in the solicitation for this contract are expressed as percentages of the total hours of employment and training of minority and female utilization that the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where that work is actually performed. The Contractor is expected to make substantially uniform progress toward its goals in each craft.

(e) Neither the terms and conditions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer minorities or women shall excuse the Contractor's obligations under this clause, Executive Order 11246, as amended, or the regulations thereunder.

(f) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(g) The Contractor shall take affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with this clause shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and implement affirmative action steps at least as extensive as the following:

(1) Ensure a working environment free of harassment, intimidation, and coercion at all sites and in all facilities where the Contractor's employees are assigned to work. The Contractor, if possible, will assign two or more women to each construction project. The Contractor shall ensure that foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at these sites or facilities.

(2) Establish and maintain a current list of sources for minority and female recruitment. Provide written notification to minority and female recruitment sources and community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Establish and maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant, referrals of minorities or females from unions, recruitment sources, or community organizations, and the action taken with respect to each individual. If an individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred back, not employed by the Contractor, this shall be documented in the file, along with whatever additional actions the Contractor may have taken.

(4) Immediately notify the Deputy Assistant Secretary when the union or unions with which the Contractor has a collective bargaining agreement has not referred back to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (g)(2) of this clause.

(6) Disseminate the Contractor's equal employment policy by--

- (i) Providing notice of the policy to unions and to training, recruitment, and outreach programs, and requesting their cooperation in assisting the Contractor in meeting its contract obligations;
 - (ii) Including the policy in any policy manual and in collective bargaining agreements;
 - (iii) Publicizing the policy in the company newspaper, annual report, etc.;
 - (iv) Reviewing the policy with all management personnel and with all minority and female employees at least once a year; and
 - (v) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.
- (7) Review, at least annually, the Contractor's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all on-site supervisory personnel before initiating construction work at a job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- (8) Disseminate the Contractor's equal employment policy externally by including it in any advertising in the news media, specifically including minority and female news media. Provide written notification to, and discuss this policy with, other Contractors and subcontractors with which the Contractor does or anticipates doing business.
- (9) Direct recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than 1 month before the date for acceptance of applications for apprenticeship or training by any recruitment source, send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- (10) Encourage present minority and female employees to recruit minority persons and women. Where reasonable, provide after-school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's workforce.
- (11) Validate all tests and other selection requirements where required under 41 CFR 60-3.
- (12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for, through appropriate training, etc., opportunities for promotion.
- (13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the Contractor's obligations under this contract are being carried out.
- (14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user rest rooms and necessary dressing or sleeping areas shall be provided to assure privacy between the sexes.
- (15) Maintain a record of solicitations for subcontracts for minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- (16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment policy and affirmative action obligations.

(h) The Contractor is encouraged to participate in voluntary associations that may assist in fulfilling one or more of the affirmative action obligations contained in subparagraphs (g)(1) through (16) of this clause. The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participant may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16) of this clause, provided the Contractor--

(1) Actively participates in the group;

(2) Makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry;

(3) Ensures that concrete benefits of the program are reflected in the Contractor's minority and female workforce participation;

(4) Makes a good-faith effort to meet its individual goals and timetables; and

(5) Can provide access to documentation that demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

(i) A single goal for minorities and a separate single goal for women shall be established. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of Executive Order 11246, as amended, if a particular group is employed in a substantially disparate manner.

(j) The Contractor shall not use goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

(k) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts under Executive Order 11246, as amended.

(l) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the Equal Opportunity clause, including suspension, termination, and cancellation of existing subcontracts, as may be imposed or ordered under Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any failure to carry out these sanctions and penalties as ordered shall be a violation of this clause and Executive Order 11246, as amended.

(m) The Contractor in fulfilling its obligations under this clause shall implement affirmative action procedures at least as extensive as those prescribed in paragraph (g) of this clause, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as amended, the implementing regulations, or this clause, the Deputy Assistant Secretary shall take action as prescribed in 41 CFR 60-4.8.

(n) The Contractor shall designate a responsible official to--

(1) Monitor all employment-related activity to ensure that the Contractor's equal employment policy is being carried out;

(2) Submit reports as may be required by the Government; and

(3) Keep records that shall at least include for each employee the name, address, telephone number, construction trade, union affiliation (if any), employee identification number, social security number, race, sex, status (e.g.,

mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, separate records are not required to be maintained.

Nothing contained herein shall be construed as a limitation upon the application of other laws that establish different standards of compliance or upon the requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(End of clause)

52.222-35 EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

(a) Definitions. As used in this clause--

All employment openings means all positions except executive and top management, those positions that will be filled from within the Contractor's organization, and positions lasting 3 days or less. This term includes full-time employment, temporary employment of more than 3 days duration, and part-time employment.

Executive and top management means any employee--

(1) Whose primary duty consists of the management of the enterprise in which the individual is employed or of a customarily recognized department or subdivision thereof;

(2) Who customarily and regularly directs the work of two or more other employees;

(3) Who has the authority to hire or fire other employees or whose suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employees will be given particular weight;

(4) Who customarily and regularly exercises discretionary powers; and

(5) Who does not devote more than 20 percent or, in the case of an employee of a retail or service establishment, who does not devote more than 40 percent of total hours of work in the work week to activities that are not directly and closely related to the performance of the work described in paragraphs (1) through (4) of this definition. This paragraph (5) does not apply in the case of an employee who is in sole charge of an establishment or a physically separated branch establishment, or who owns at least a 20 percent interest in the enterprise in which the individual is employed.

Other eligible veteran means any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized.

Positions that will be filled from within the Contractor's organization means employment openings for which the Contractor will give no consideration to persons outside the Contractor's organization (including any affiliates, subsidiaries, and parent companies) and includes any openings the Contractor proposes to fill from regularly established "recall" lists. The exception does not apply to a particular opening once an employer decides to consider applicants outside of its organization.

Qualified special disabled veteran means a special disabled veteran who satisfies the requisite skill, experience, education, and other job-related requirements of the employment position such veteran holds or desires, and who, with or without reasonable accommodation, can perform the essential functions of such position.

Special disabled veteran means--

(1) A veteran who is entitled to compensation (or who but for the receipt of military retired pay would be entitled to compensation) under laws administered by the Department of Veterans Affairs for a disability--

(i) Rated at 30 percent or more; or

(ii) Rated at 10 or 20 percent in the case of a veteran who has been determined under 38 U.S.C. 3106 to have a serious employment handicap (i.e., a significant impairment of the veteran's ability to prepare for, obtain, or retain employment consistent with the veteran's abilities, aptitudes, and interests); or

(2) A person who was discharged or released from active duty because of a service-connected disability.

Veteran of the Vietnam era means a person who--

(1) Served on active duty for a period of more than 180 days and was discharged or released from active duty with other than a dishonorable discharge, if any part of such active duty occurred--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases; or

(2) Was discharged or released from active duty for a service-connected disability if any part of the active duty was performed--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases.

(b) General. (1) The Contractor shall not discriminate against the individual because the individual is a special disabled veteran, a veteran of the Vietnam era, or other eligible veteran, regarding any position for which the employee or applicant for employment is qualified. The Contractor shall take affirmative action to employ, advance in employment, and otherwise treat qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans without discrimination based upon their disability or veterans' status in all employment practices such as--

(i) Recruitment, advertising, and job application procedures;

(ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff and rehiring;

(iii) Rate of pay or any other form of compensation and changes in compensation;

(iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

(v) Leaves of absence, sick leave, or any other leave;

(vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;

(vii) Selection and financial support for training, including apprenticeship, and on-the-job training under 38 U.S.C. 3687, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

(viii) Activities sponsored by the Contractor including social or recreational programs; and

(ix) Any other term, condition, or privilege of employment.

(2) The Contractor shall comply with the rules, regulations, and relevant orders of the Secretary of Labor issued under the Vietnam Era Veterans' Readjustment Assistance Act of 1972 (the Act), as amended (38 U.S.C. 4211 and 4212).

(c) Listing openings. (1) The Contractor shall immediately list all employment openings that exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract, and including those occurring at an establishment of the Contractor other than the one where the contract is being performed, but excluding those of independently operated corporate affiliates, at an appropriate local public employment service office of the State wherein the opening occurs. Listing employment openings with the U.S. Department of Labor's America's Job Bank shall satisfy the requirement to list jobs with the local employment service office.

(2) The Contractor shall make the listing of employment openings with the local employment service office at least concurrently with using any other recruitment source or effort and shall involve the normal obligations of placing a bona fide job order, including accepting referrals of veterans and nonveterans. This listing of employment openings does not require hiring any particular job applicant or hiring from any particular group of job applicants and is not intended to relieve the Contractor from any requirements of Executive orders or regulations concerning nondiscrimination in employment.

(3) Whenever the Contractor becomes contractually bound to the listing terms of this clause, it shall advise the State public employment agency in each State where it has establishments of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these terms and has so advised the State agency, it need not advise the State agency of subsequent contracts. The Contractor may advise the State agency when it is no longer bound by this contract clause.

(d) Applicability. This clause does not apply to the listing of employment openings that occur and are filled outside the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, the Virgin Islands of the United States, and Wake Island.

(e) Postings. (1) The Contractor shall post employment notices in conspicuous places that are available to employees and applicants for employment.

(2) The employment notices shall--

(i) State the rights of applicants and employees as well as the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants who are special disabled veterans, veterans of the Vietnam era, and other eligible veterans; and

(ii) Be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, Department of Labor (Deputy Assistant Secretary of Labor), and provided by or through the Contracting Officer.

(3) The Contractor shall ensure that applicants or employees who are special disabled veterans are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled veteran, or may lower the posted notice so that it can be read by a person in a wheelchair).

(4) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement, or other contract understanding, that the Contractor is bound by the terms of the Act and is committed to take affirmative action to employ, and advance in employment, qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans.

(f) Noncompliance. If the Contractor does not comply with the requirements of this clause, the Government may take appropriate actions under the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(g) Subcontracts. The Contractor shall insert the terms of this clause in all subcontracts or purchase orders of \$25,000 or more unless exempted by rules, regulations, or orders of the Secretary of Labor. The Contractor shall act as specified by the Deputy Assistant Secretary of Labor to enforce the terms, including action for noncompliance.

(End of clause)

52.222-36 AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (JUN 1998)

(a) General. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against any employee or applicant because of physical or mental disability. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified individuals with disabilities without discrimination based upon their physical or mental disability in all employment practices such as--

- (i) Recruitment, advertising, and job application procedures;
- (ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff, and rehiring;
- (iii) Rates of pay or any other form of compensation and changes in compensation;
- (iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;
- (v) Leaves of absence, sick leave, or any other leave;
- (vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;
- (vii) Selection and financial support for training, including apprenticeships, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;
- (viii) Activities sponsored by the Contractor, including social or recreational programs; and
- (ix) Any other term, condition, or privilege of employment.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Rehabilitation Act of 1973 (29 U.S.C. 793) (the Act), as amended.

(b) Postings. (1) The Contractor agrees to post employment notices stating--

- (i) The Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified individuals with disabilities; and

(ii) The rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. The Contractor shall ensure that applicants and employees with disabilities are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair). The notices shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance of the U.S. Department of Labor (Deputy Assistant Secretary) and shall be provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified individuals with physical or mental disabilities.

(c) Noncompliance. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(d) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order in excess of \$10,000 unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.

(End of clause)

52.222-37 EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

(a) Unless the Contractor is a State or local government agency, the Contractor shall report at least annually, as required by the Secretary of Labor, on--

(1) The number of disabled veterans and the number of veterans of the Vietnam era in the workforce of the contractor by job category and hiring location; and

(2) The total number of new employees hired during the period covered by the report, and of that total, the number of disabled veterans, and the number of veterans of the Vietnam era.

(b) The above items shall be reported by completing the form entitled "Federal Contractor Veterans' Employment Report VETS-100."

(c) Reports shall be submitted no later than September 30 of each year beginning September 30, 1988.

(d) The employment activity report required by paragraph (a)(2) of this clause shall reflect total hires during the most recent 12-month period as of the ending date selected for the employment profile report required by paragraph (a)(1) of this clause. Contractors may select an ending date: (1) As of the end of any pay period during the period January through March 1st of the year the report is due, or (2) as of December 31, if the contractor has previous written approval from the Equal Employment Opportunity Commission to do so for purposes of submitting the Employer Information Report EEO-1 (Standard Form 100).

(e) The count of veterans reported according to paragraph (a) of this clause shall be based on voluntary disclosure. Each Contractor subject to the reporting requirements at 38 U.S.C. 4212 shall invite all disabled veterans and veterans of the Vietnam era who wish to benefit under the affirmative action program at 38 U.S.C. 4212 to identify themselves to the Contractor. The invitation shall state that the information is voluntarily provided; that the information will be

kept confidential; that disclosure or refusal to provide the information will not subject the applicant or employee to any adverse treatment; and that the information will be used only in accordance with the regulations promulgated under 38 U.S.C. 4212.

(f) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order of \$10,000 or more unless exempted by rules, regulations, or orders of the Secretary.

(End of clause)

52.223-3 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA (JAN 1997)

(a) "Hazardous material", as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material	Identification No.
(If none, insert "None")	

(c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(d) The apparently successful offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer and resubmit the data.

(f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.

(g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.

(h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows:

(1) To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to--

(i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;

(ii) Obtain medical treatment for those affected by the material; and

(iii) Have others use, duplicate, and disclose the data for the Government for these purposes.

(2) To use, duplicate, and disclose data furnished under this clause, in accordance with subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.

(3) The Government is not precluded from using similar or identical data acquired from other sources.

(End of clause)

52.223-5 POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION (AUG 2003)

(a) Definitions. As used in this clause--

Priority chemical means a chemical identified by the Interagency Environmental Leadership Workgroup or, alternatively, by an agency pursuant to section 503 of Executive Order 13148 of April 21, 2000, Greening the Government through Leadership in Environmental Management.

“Toxic chemical means a chemical or chemical category listed in 40 CFR 372.65.”

(b) Executive Order 13148 requires Federal facilities to comply with the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11001-11050) and the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13101-13109).

(c) The Contractor shall provide all information needed by the Federal facility to comply with the following:

(1) The emergency planning reporting requirements of section 302 of EPCRA.

(2) The emergency notice requirements of section 304 of EPCRA.

(3) The list of Material Safety Data Sheets, required by section 311 of EPCRA.

(4) The emergency and hazardous chemical inventory forms of section 312 of EPCRA.

(5) The toxic chemical release inventory of section 313 of EPCRA, which includes the reduction and recycling information required by section 6607 of PPA.

(6) The toxic chemical, priority chemical, and hazardous substance release and use reduction goals of sections 502 and 503 of Executive Order 13148.

(End of clause)

52.223-6 DRUG-FREE WORKPLACE (MAY 2001)

(a) Definitions. As used in this clause --

"Controlled substance" means a controlled substance in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11 - 1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, possession, or use of any controlled substance.

"Drug-free workplace" means the site(s) for the performance of work done by the Contractor in connection with a specific contract at which employees of the Contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a Contractor directly engaged in the performance of work under a Government contract. "Directly engaged" is defined to include all direct cost employees and any other Contractor employee who has other than a minimal impact or involvement in contract performance.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) The Contractor, if other than an individual, shall-- within 30 days after award (unless a longer period is agreed to in writing for contracts of 30 days or more performance duration), or as soon as possible for contracts of less than 30 days performance duration--

(1) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish an ongoing drug-free awareness program to inform such employees about--

(i) The dangers of drug abuse in the workplace;

(ii) The Contractor's policy of maintaining a drug-free workplace;

(iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

(iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(3) Provide all employees engaged in performance of the contract with a copy of the statement required by subparagraph (b)(1) of this clause;

(4) Notify such employees in writing in the statement required by subparagraph (b)(1) of this clause that, as a condition of continued employment on this contract, the employee will--

(i) Abide by the terms of the statement; and

(ii) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction.

(5) Notify the Contracting Officer in writing within 10 days after receiving notice under subdivision (b)(4)(ii) of this clause, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the

position title of the employee;

(6) Within 30 days after receiving notice under subdivision (b)(4)(ii) of this clause of a conviction, take one of the following actions with respect to any employee who is convicted of a drug abuse violation occurring in the workplace:

(i) Taking appropriate personnel action against such employee, up to and including termination; or

(ii) Require such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency; and

(7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraphs (b)(1) through (b)(6) of this clause.

(c) The Contractor, if an individual, agrees by award of the contract or acceptance of a purchase order, not to engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance while performing this contract.

(d) In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraph (b) or (c) of this clause may, pursuant to FAR 23.506, render the Contractor subject to suspension of contract payments, termination of the contract for default, and suspension or debarment.

(End of clause)

52.223-9 ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA-DESIGNATED PRODUCTS (AUG 2000)

(a) Definitions. As used in this clause--

Postconsumer material means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of "recovered material."

Recovered material means waste materials and by-products recovered or diverted from solid waste, but the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

(b) The Contractor, on completion of this contract, shall--

(1) Estimate the percentage of the total recovered material used in contract performance, including, if applicable, the percentage of postconsumer material content; and

(2) Submit this estimate to **Susan K. Sherrell, Contracting Office, U.S. Army Corps of Engineers, Seattle District**.

(End of clause)

52.223-14 TOXIC CHEMICAL RELEASE REPORTING (AUG 2003)

(a) Unless otherwise exempt, the Contractor, as owner or operator of a facility used in the performance of this contract, shall file by July 1 for the prior calendar year an annual Toxic Chemical Release Inventory Form (Form R) as

described in sections 313(a) and (g) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023(a) and (g)), and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106). The Contractor shall file, for each facility subject to the Form R filing and reporting requirements, the annual Form R throughout the life of the contract.

(b) A Contractor-owned or -operated facility used in the performance of this contract is exempt from the requirement to file an annual Form R if--

- (1) The facility does not manufacture, process, or otherwise use any toxic chemicals listed in 40 CFR 372.65;
 - (2) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);
 - (3) The facility does not meet the reporting thresholds of toxic chemicals established under of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);
 - (4) The facility does not fall within the following Standard Industrial Classification (SIC) codes or their corresponding North American Industry Classification System sectors:
 - (i) Major group code 10 (except 1011, 1081, and 1094.
 - (ii) Major group code 12 (except 1241).
 - (iii) Major group codes 20 through 39.
 - (iv) Industry code 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce).
 - (v) Industry code 4953 (limited to facilities regulated under the Resource Conservation and Recovery Act, Subtitle C (42 U.S.C. 6921, et seq.)), 5169, 5171, or 7389 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis); or
 - (5) The facility is not located in the United States or its outlying areas.
- (c) If the Contractor has certified to an exemption in accordance with one or more of the criteria in paragraph (b) of this clause, and after award of the contract circumstances change so that any of its owned or operated facilities used in the performance of this contract is no longer exempt--

- (1) The Contractor shall notify the Contracting Officer; and
- (2) The Contractor, as owner or operator of a facility used in the performance of this contract that is no longer exempt, shall (i) submit a Toxic Chemical Release Inventory Form (Form R) on or before July 1 for the prior calendar year during which the facility becomes eligible; and (ii) continue to file the annual Form R for the life of the contract for such facility.
- (d) The Contracting Officer may terminate this contract or take other action as appropriate, if the Contractor fails to comply accurately and fully with the EPCRA and PPA toxic chemical release filing and reporting requirements.
- (e) Except for acquisitions of commercial items, as defined in FAR Part 2, the Contractor shall--
 - (1) For competitive subcontracts expected to exceed \$100,000 (including all options), include a solicitation provision substantially the same as the provision at FAR 52.223-13, Certification of Toxic Chemical Release Reporting; and

(2) Include in any resultant subcontract exceeding \$100,000 (including all options), the substance of this clause, except this paragraph (e).

(End of clause)

52.224-1 PRIVACY ACT NOTIFICATION (APR 1984)

The Contractor will be required to design, develop, or operate a system of records on individuals, to accomplish an agency function subject to the Privacy Act of 1974, Public Law 93-579, December 31, 1974 (5 U.S.C. 552a) and applicable agency regulations. Violation of the Act may involve the imposition of criminal penalties.

(End of clause)

52.224-2 PRIVACY ACT (APR 1984)

(a) The Contractor agrees to--

(1) Comply with the Privacy Act of 1974 (the Act) and the agency rules and regulations issued under the Act in the design, development, or operation of any system of records on individuals to accomplish an agency function when the contract specifically identifies--

(i) The systems of records; and

(ii) The design, development, or operation work that the contractor is to perform;

(2) Include the Privacy Act notification contained in this contract in every solicitation and resulting subcontract and in every subcontract awarded without a solicitation, when the work statement in the proposed subcontract requires the redesign, development, or operation of a system of records on individuals that is subject to the Act; and

(3) Include this clause, including this subparagraph (3), in all subcontracts awarded under this contract which requires the design, development, or operation of such a system of records.

(b) In the event of violations of the Act, a civil action may be brought against the agency involved when the violation concerns the design, development, or operation of a system of records on individuals to accomplish an agency function, and criminal penalties may be imposed upon the officers or employees of the agency when the violation concerns the operation of a system of records on individuals to accomplish an agency function. For purposes of the Act, when the contract is for the operation of a system of records on individuals to accomplish an agency function, the Contractor is considered to be an employee of the agency.

(c)(1) "Operation of a system of records," as used in this clause, means performance of any of the activities associated with maintaining the system of records, including the collection, use, and dissemination of records.

(2) "Record," as used in this clause, means any item, collection, or grouping of information about an individual that is maintained by an agency, including, but not limited to, education, financial transactions, medical history, and criminal or employment history and that contains the person's name, or the identifying number, symbol, or other identifying particular assigned to the individual, such as a fingerprint or voiceprint or a photograph.

(3) "System of records on individuals," as used in this clause, means a group of any records under the control of any agency from which information is retrieved by the name of the individual or by some identifying number, symbol, or

other identifying particular assigned to the individual.

(End of clause)

52.225-5 TRADE AGREEMENTS (JUN 2003)

(a) Definitions. As used in this clause.

Caribbean Basin country means any of the following countries: Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Costa Rica, Dominica, El Salvador, Grenada, Guatemala, Guyana, Haiti, Jamaica, Montserrat, Netherlands Antilles, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago.

Caribbean Basin country end product means an article that--

(1) Is wholly the growth, product, or manufacture of a Caribbean Basin country; or

(2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a Caribbean Basin country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself. The term excludes products that are excluded from duty-free treatment for Caribbean countries under 19 U.S.C. 2703(b), which presently are--

(i) Textiles and apparel articles that are subject to textile agreements;

(ii) Footwear, handbags, luggage, flat goods, work gloves, and leather wearing apparel not designated as eligible articles for the purpose of the Generalized System of Preferences under Title V of the Trade Act of 1974;

(iii) Tuna, prepared or preserved in any manner in airtight containers;

(iv) Petroleum, or any product derived from petroleum; and

(v) Watches and watch parts (including cases, bracelets, and straps) of whatever type including, but not limited to, mechanical, quartz digital, or quartz analog, if such watches or watch parts contain any material that is the product of any country to which the Harmonized Tariff Schedule of the United States (HTSUS) column 2 rates of duty apply.

Designated country means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark, Djibouti, Equatorial Guinea.

Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Honduras, Hong Kong, Iceland, Ireland, Israel, Italy, Japan.

Kiribati, Korea, Republic of Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda.

Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country end product means an article that--

- (1) Is wholly the growth, product, or manufacture of a designated country; or
- (2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services, (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself.

End product means supplies delivered under a line item of a Government contract.

North American Free Trade Agreement country means Canada or Mexico.

North American Free Trade Agreement country end product means an article that--

- (1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or
- (2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services, (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself.

United States means the 50 States, the District of Columbia, and outlying areas.

U.S.-made end product means an article that is mined, produced, or manufactured in the United States or that is substantially transformed in the United States into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed.,

(b) Implementation. This clause implements the Trade, Agreements Act (19 U.S.C. 2501, et seq.) and the North American Free Trade Agreement Implementation Act of 1993, (NAFTA) (19 U.S.C. 3301 note), by restricting the acquisition of end products that are not U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products.,

(c) Delivery of end products. The Contracting Officer has determined that the Trade Agreements Act and NAFTA apply to this acquisition. Unless otherwise specified, these trade agreements apply to all items in the Schedule. The Contractor shall deliver under this contract only U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products except to the extent that, in its offer, it specified delivery of other end products in the provision entitled "Trade Agreements Certificate."

(End of clause)

52.225-9 BUY AMERICAN ACT—CONSTRUCTION MATERIALS (JUN 2003)

(a) Definitions. As used in this clause--

Component means an article, material, or supply incorporated directly into a construction material.

Construction material means an article, material, or supply brought to the construction site by the Contractor or a subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

- (1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or
- (2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

Domestic construction material means--

- (1) An unmanufactured construction material mined or produced in the United States; or
- (2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

United States means the 50 States, the District of Columbia, and outlying areas.

- (b) Domestic preference. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) by providing a preference for domestic construction material. The Contractor shall use only domestic construction material in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.
- (2) This requirement does not apply to the construction material or components listed by the Government as follows: [Contracting Officer to list applicable excepted materials or indicate "none"]
- (3) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(2) of this clause if the Government determines that
 - (i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the requirements of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;
 - (ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or
 - (iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act. (1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(3) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(3)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
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Item 1

Foreign construction material....

Domestic construction material...

Item 2

Foreign construction material....
 Domestic construction material...

Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).

List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.

Include other applicable supporting information.

(End of clause)

52.225-11 BUY AMERICAN ACT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (JUN 2003)

(a) Definitions. As used in this clause--

Component means an article, material, or supply incorporated directly into a construction material.

Construction material means an article, material, or supply brought to the construction site by the Contractor or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

Designated country means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark.

Djibouti, Equatorial Guinea, Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Hong Kong, Ireland, Israel, Italy, Japan.

Kiribati, Korea, Republic of, Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda.

Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country construction material means a construction material that--

(1) Is wholly the growth, product, or manufacture of a designated country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

Domestic construction material means--

- (1) An unmanufactured construction material mined or produced in the United States; or
- (2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

North American Free Trade Agreement country means Canada or Mexico.

North American Free Trade Agreement country construction material means a construction material that--

- (1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different construction material distinct from the materials from which it was transformed.

United States means the 50 States, the District of Columbia, and outlying areas.

(b) Construction materials. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) and the Balance of Payments Program by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the Trade Agreements Act and the North American Free Trade Agreement (NAFTA) apply to this acquisition. Therefore, the Buy American Act restrictions are waived for designated country and NAFTA country construction materials.

(2) The Contractor shall use only domestic, designated country, or NAFTA country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows: **NONE**.

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that--

- (i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;
- (ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or
- (iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act.

(1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
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Item 1:

Foreign construction material....

Domestic construction material....

Item 2:

Foreign construction material....

Domestic construction material... ..

\1\ Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).

List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.

Include other applicable supporting information.

(End of clause)

52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUN 2003) (DEVIATION)

(a) Except as authorized by the Office of Foreign Assets Control (OFAC) in the Department of the Treasury, agencies and their contractors and subcontractors must not acquire any supplies or services, if any Executive order administered by OFAC's regulations set forth at 31 CFR Chapter V would prohibit such a transaction by a person subject to the jurisdiction of the United States.

(b) Except as authorized by OFAC most transactions involving Cuba, Iran, Libya, and Sudan are prohibited, as are most imports into the United States from North Korea. Lists of entities and individuals subject to economic sanctions are included in OFAC's List of Specially Designated Nationals and Blocked Persons. More information about these restrictions as well as updates with respect to restrictions imposed after April 2003, is available in OFAC's regulations at 31 DFR Chapter V and/or OFAC's website at <http://www.treas.gov/ofac>.

(End of clause)

52.227-1 AUTHORIZATION AND CONSENT (JUL 1995)

(a) The Government authorizes and consents to all use and manufacture, in performing this contract or any subcontract at any tier, of any invention described in and covered by a United States patent (1) embodied in the structure or composition of any article the delivery of which is accepted by the Government under this contract or (2) used in machinery, tools, or methods whose use necessarily results from compliance by the Contractor or a subcontractor with (i) specifications or written provisions forming a part of this contract or (ii) specific written instructions given by the Contracting Officer directing the manner of performance. The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted.

(b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold (however, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.)

(End of clause)

52.228-11 PLEDGES OF ASSETS (FEB 1992)

(a) Offerors shall obtain from each person acting as an individual surety on a bid guarantee, a performance bond, or a payment bond--

(1) Pledge of assets; and

(2) Standard Form 28, Affidavit of Individual Surety.

(b) Pledges of assets from each person acting as an individual surety shall be in the form of--

(1) Evidence of an escrow account containing cash, certificates of deposit, commercial or Government securities, or other assets described in FAR 28.203-2 (except see 28.203-2(b)(2) with respect to Government securities held in book entry form) and/or;

(2) A recorded lien on real estate. The offeror will be required to provide--

(i) Evidence of title in the form of a certificate of title prepared by a title insurance company approved by the United States Department of Justice. This title evidence must show fee simple title vested in the surety along with any concurrent owners; whether any real estate taxes are due and payable; and any recorded encumbrances against the property, including the lien filed in favor of the Government as required by FAR 28.203-3(d);

(ii) Evidence of the amount due under any encumbrance shown in the evidence of title;

(iii) A copy of the current real estate tax assessment of the property or a current appraisal dated no earlier than 6 months prior to the date of the bond, prepared by a professional appraiser who certifies that the appraisal has been conducted in accordance with the generally accepted appraisal standards as reflected in the Uniform Standards of Professional Appraisal Practice, as promulgated by the Appraisal Foundation.

(End of clause)

52.228-12 PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS. (OCT 1995)

In accordance with Section 806(a)(3) of Pub. L. 102-190, as amended by Sections 2091 and 8105 of Pub. L. 103-355, upon the request of a prospective subcontractor or supplier offering to furnish labor or material for the performance of this contract for which a payment bond has been furnished to the Government pursuant to the Miller Act, the Contractor shall promptly provide a copy of such payment bond to the requester.

(End of clause)

52.228-13 ALTERNATIVE PAYMENT PROTECTIONS (JULY 2000)

(a) The Contractor shall submit one of the following payment protections:

**Irrevocable Letter of Credit
Payment Bond**

(b) The amount of the payment protection shall be 100 percent of the contract price.

(c) The submission of the payment protection is required within **ten (10)** days of contract award.

- (d) The payment protection shall provide protection for the full contract performance period plus a one-year period.
- (e) Except for escrow agreements and payment bonds, which provide their own protection procedures, the Contracting Officer is authorized to access funds under the payment protection when it has been alleged in writing by a supplier of labor or material that a nonpayment has occurred, and to withhold such funds pending resolution by administrative or judicial proceedings or mutual agreement of the parties.
- (f) When a tripartite escrow agreement is used, the Contractor shall utilize only suppliers of labor and material that signed the escrow agreement.

(End of clause)

52.228-14 IRREVOCABLE LETTER OF CREDIT (DEC 1999)

- (a) "Irrevocable letter of credit" (ILC), as used in this clause, means a written commitment by a federally insured financial institution to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Government (the beneficiary) of a written demand therefor. Neither the financial institution nor the offeror/Contractor can revoke or condition the letter of credit.
- (b) If the offeror intends to use an ILC in lieu of a bid bond, or to secure other types of bonds such as performance and payment bonds, the letter of credit and letter of confirmation formats in paragraphs (e) and (f) of this clause shall be used.
- (c) The letter of credit shall be irrevocable, shall require presentation of no document other than a written demand and the ILC (including confirming letter, if any), shall be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (d) of this clause, and--
 - (1) If used as a bid guarantee, the ILC shall expire no earlier than 60 days after the close of the bid acceptance period;
 - (2) If used as an alternative to corporate or individual sureties as security for a performance or payment bond, the offeror/Contractor may submit an ILC with an initial expiration date estimated to cover the entire period for which financial security is required or may submit an ILC with an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Contracting Officer provides the financial institution with a written statement waiving the right to payment. The period of required coverage shall be:
 - (i) For contracts subject to the Miller Act, the later of--
 - (A) One year following the expected date of final payment;
 - (B) For performance bonds only, until completion of any warranty period; or
 - (C) For payment bonds only, until resolution of all claims filed against the payment bond during the one-year period following final payment.
 - (ii) For contracts not subject to the Miller Act, the later of--
 - (A) 90 days following final payment; or

(B) For performance bonds only, until completion of any warranty period.

(d) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. The offeror/Contractor shall provide the Contracting Officer a credit rating that indicates the financial institution has the required rating(s) as of the date of issuance of the ILC. Unless the financial institution issuing the ILC had letter of credit business of less than \$25 million in the past year, ILCs over \$5 million must be confirmed by another acceptable financial institution that had letter of credit business of less than \$25 million in the past year.

(e) The following format shall be used by the issuing financial institution to create an ILC:

[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date _____

IRREVOCABLE LETTER OF CREDIT NO. _____

Account party's name _____

Account party's address _____

For Solicitation No. _____ (for reference only)

TO: [U.S. Government agency]

[U.S. Government agency's address]

1. We hereby establish this irrevocable and transferable Letter of Credit in your favor for one or more drawings up to United States \$ _____. This Letter of Credit is payable at [issuing financial institution's and, if any, confirming financial institution's] office at [issuing financial institution's address and, if any, confirming financial institution's address] and expires with our close of business on _____, or any automatically extended expiration date.

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

3. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you or the transferee by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

4. This Letter of Credit is transferable. Transfers and assignments of proceeds are to be effected without charge to either the beneficiary or the transferee/assignee of proceeds. Such transfer or assignment shall be only at the written direction of the Government (the beneficiary) in a form satisfactory to the issuing financial institution and the confirming financial institution, if any.

5. This Letter of Credit is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of

_____ [state of confirming financial institution, if any, otherwise state of issuing financial institution].

6. If this credit expires during an interruption of business of this financial institution as described in Article 17 of the UCP, the financial institution specifically agrees to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

[Issuing financial institution]

(f) The following format shall be used by the financial institution to confirm an ILC:

[Confirming Financial Institution's Letterhead or Name and Address]

(Date) _____

Our Letter of Credit Advice Number _____

Beneficiary: _____ [U.S. Government agency]

Issuing Financial Institution: _____

Issuing Financial Institution's LC No.: _____

Gentlemen:

1. We hereby confirm the above indicated Letter of Credit, the original of which is attached, issued by _____ [name of issuing financial institution] for drawings of up to United States dollars _____/U.S. \$ _____ and expiring with our close of business on _____ [the expiration date], or any automatically extended expiration date.

2. Draft(s) drawn under the Letter of Credit and this Confirmation are payable at our office located at _____.

3. We hereby undertake to honor sight draft(s) drawn under and presented with the Letter of Credit and this Confirmation at our offices as specified herein.

4. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this confirmation that it be deemed automatically extended without amendment for one year from the expiration date hereof, or any automatically extended expiration date, unless:

(a) At least 60 days prior to any such expiration date, we shall notify the Contracting Officer, or the transferee and the issuing financial institution, by registered mail or other receipted means of delivery, that we elect not to consider this confirmation extended for any such additional period; or

(b) The issuing financial institution shall have exercised its right to notify you or the transferee, the account party, and ourselves, of its election not to extend the expiration date of the Letter of Credit.

5. This confirmation is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision,

International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution].

6. If this confirmation expires during an interruption of business of this financial institution as described in Article 17 of the UCP, we specifically agree to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

[Confirming financial institution]

(g) The following format shall be used by the Contracting Officer for a sight draft to draw on the Letter of Credit:

SIGHT DRAFT

[City, State]

(Date) _____

[Name and address of financial institution]

Pay to the order of _____ [Beneficiary Agency] _____ the sum of United States \$ _____. This draft is drawn under Irrevocable Letter of Credit No.

_____.

[Beneficiary Agency]

By: _____

(End of clause)

52.228-15 PERFORMANCE AND PAYMENT BONDS--CONSTRUCTION (JUL 2000)-

(a) Definitions. As used in this clause--

Original contract price means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) Amount of required bonds. Unless the resulting contract price is \$100,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) Performance bonds (Standard Form 25). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment Bonds (Standard Form 25-A). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection. (i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) Furnishing executed bonds. The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.

(d) Surety or other security for bonds. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or may be obtained from the U.S. Department of Treasury, Financial Management Service, Surety Bond Branch, 401 14th Street, NW, 2nd Floor, West Wing, Washington, DC 20227.

(e) Notice of subcontractor waiver of protection (40 U.S.C. 270b(c)). Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract.

(End of clause)

INFORMATION REGARDING PERFORMANCE AND PAYMENT BONDS (FAR 28.102) (52.228-4001) FEB 2001

Within 10 days after the prescribed forms are presented to the bidder to whom award is made, unless a shorter time is prescribed in the contract, two bonds, namely a performance bond (Standard Form 25) and a payment bond (Standard Form 25A), shall be executed and furnished to the Government, each with good and sufficient surety or sureties acceptable to the Government. The penal sums of such bonds shall be as follows:

(1) Performance Bond. The penal sum of the performance bond shall equal one hundred percent (100%) of the contract price.

(2) Payment Bond. The penal sum of the payment bond shall equal one hundred percent (100%) of the contract price.

Any bonds furnished must be furnished by the Contractor to the Government prior to commencement of contract performance.

52.229-3 FEDERAL, STATE, AND LOCAL TAXES (APR 2003)

(a) As used in this clause--

"Contract date" means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification.

"All applicable Federal, State, and local taxes and duties" means all taxes and duties, in effect on the contract date, that the taxing authority is imposing and collecting on the transactions or property covered by this contract.

"After-imposed Federal tax" means any new or increased Federal excise tax or duty, or tax that was exempted or excluded on the contract date but whose exemption was later revoked or reduced during the contract period, on the transactions or property covered by this contract that the Contractor is required to pay or bear as the result of legislative, judicial, or administrative action taking effect after the contract date. It does not include social security tax or other employment taxes.

"After-relieved Federal tax" means any amount of Federal excise tax or duty, except social security or other employment taxes, that would otherwise have been payable on the transactions or property covered by this contract, but which the Contractor is not required to pay or bear, or for which the Contractor obtains a refund or drawback, as the result of legislative, judicial, or administrative action taking effect after the contract date.

Local taxes includes taxes imposed by a possession or territory of the United States, Puerto Rico, or the Northern Mariana Islands, if the contract is performed wholly or partly in any of those areas.

- (b) The contract price includes all applicable Federal, State, and local taxes and duties.
- (c) The contract price shall be increased by the amount of any after-imposed Federal tax, provided the Contractor warrants in writing that no amount for such newly imposed Federal excise tax or duty or rate increase was included in the contract price, as a contingency reserve or otherwise.
- (d) The contract price shall be decreased by the amount of any after-relieved Federal tax.
- (e) The contract price shall be decreased by the amount of any Federal excise tax or duty, except social security or other employment taxes, that the Contractor is required to pay or bear, or does not obtain a refund of, through the Contractor's fault, negligence, or failure to follow instructions of the Contracting Officer.
- (f) No adjustment shall be made in the contract price under this clause unless the amount of the adjustment exceeds \$250.
- (g) The Contractor shall promptly notify the Contracting Officer of all matters relating to any Federal excise tax or duty that reasonably may be expected to result in either an increase or decrease in the contract price and shall take appropriate action as the Contracting Officer directs.
- (h) The Government shall, without liability, furnish evidence appropriate to establish exemption from any Federal, State, or local tax when the Contractor requests such evidence and a reasonable basis exists to sustain the exemption.

(End of clause)

52.230-3 DISCLOSURE AND CONSISTENCY OF COST ACCOUNTING PRACTICES (APR 1998)

(a) The Contractor, in connection with this contract, shall--

(1) Comply with the requirements of 48 CFR 9904.401, Consistency in Estimating, Accumulating, and Reporting Costs; 48 CFR 9904.402, Consistency in Allocating Costs Incurred for the Same Purpose; 48 CFR 9904.405, Accounting for Unallowable Costs; and 48 CFR 9904.406, Cost Accounting Standard--Cost Accounting Period, in effect on the date of award of this contract as indicated in 48 CFR Part 9904.

(2) (CAS-covered Contracts Only) If it is a business unit of a company required to submit a Disclosure Statement, disclose in writing its cost accounting practices as required by 48 CFR 9903.202-1 through 9903.202-5. If the Contractor has notified the Contracting Officer that the Disclosure Statement contains trade secrets and commercial or financial information which is privileged and confidential, the Disclosure Statement shall be protected and shall not be released outside of the Government.

(3)(i) Follow consistently the Contractor's cost accounting practices. A change to such practices may be proposed, however, by either the Government or the Contractor, and the Contractor agrees to negotiate with the Contracting Officer the terms and conditions under which a change may be made. After the terms and conditions under which the change is to be made have been agreed to, the change must be applied prospectively to this contract, and the Disclosure Statement, if affected, must be amended accordingly.

(ii) The Contractor shall, when the parties agree to a change to a cost accounting practice and the Contracting Officer has made the finding required in 48 CFR 9903.201-6(b), that the change is desirable and not detrimental to the interests of the Government, negotiate an equitable adjustment as provided in the Changes clause of this contract. In the absence of the required finding, no agreement may be made under this contract clause that will increase costs paid by the United States.

(4) Agree to an adjustment of the contract price or cost allowance, as appropriate, if the Contractor or a subcontractor fails to comply with the applicable CAS or to follow any cost accounting practice, and such failure results in any increased costs paid by the United States. Such adjustment shall provide for recovery of the increased costs to the United States together with interest thereon computed at the annual rate of interest established under the Internal Revenue Code of 1986 (26 U.S.C. 6621), from the time the payment by the United States was made to the time the adjustment is effected.

(b) If the parties fail to agree whether the Contractor has complied with an applicable CAS, rule, or regulation as specified in 48 CFR 9903 and 9904 and as to any cost adjustment demanded by the United States, such failure to agree will constitute a dispute under the Contract Disputes Act (41 U.S.C. 601).

(c) The Contractor shall permit any authorized representatives of the Government to examine and make copies of any documents, papers, and records relating to compliance with the requirements of this clause.

(d) The Contractor shall include in all negotiated subcontracts, which the Contractor enters into, the substance of this clause, except paragraph (b), and shall require such inclusion in all other subcontracts of any tier, except that--

(1) If the subcontract is awarded to a business unit which pursuant to 48 CFR 9903.201-2 is subject to other types of CAS coverage, the substance of the applicable clause set forth in subsection 30.201-4 of the Federal Acquisition Regulation shall be inserted.

(2) This requirement shall apply only to negotiated subcontracts in excess of \$500,000.

(3) The requirement shall not apply to negotiated subcontracts otherwise exempt from the requirement to include a CAS clause as specified in 48 CFR 9903.201-1.

(End of clause)

52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (SEP 2002)

(a) Payment of price. The Government shall pay the Contractor the contract price as provided in this contract.

(b) Progress payments. The Government shall make progress payments monthly as the work proceeds, or at more

frequent intervals as determined by the Contracting Officer, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer.

(1) The Contractor's request for progress payments shall include the following substantiation:

(i) An itemization of the amounts requested, related to the various elements of work required by the contract covered by the payment requested.

(ii) A listing of the amount included for work performed by each subcontractor under the contract.

(iii) A listing of the total amount of each subcontract under the contract.

(iv) A listing of the amounts previously paid to each such subcontractor under the contract.

(v) Additional supporting data in a form and detail required by the Contracting Officer.

(2) In the preparation of estimates, the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site also may be taken into consideration if--

(i) Consideration is specifically authorized by this contract; and

(ii) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) Contractor certification. Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made: (However, if the Contractor elects to delete paragraph (c)(4) from the certification, the certification is still acceptable.)

I hereby certify, to the best of my knowledge and belief, that--

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) All payments due to subcontractors and suppliers from previous payments received under the contract have been made, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of chapter 39 of Title 31, United States Code;

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and

(4) This certification is not to be construed as final acceptance of a subcontractor's performance.

(Name)

(Title)

(Date)

(d) Refund of unearned amounts. If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such request constitutes a payment for performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the "unearned amount"), the Contractor shall--

(1) Notify the Contracting Officer of such performance deficiency; and

(2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in paragraph (j) of this clause) equal to interest on the unearned amount from the 8th day after the date of receipt of the unearned amount until--

(i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or

(ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(e) Retainage. If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment until satisfactory progress is achieved. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(f) Title, liability, and reservation of rights. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as--

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(g) Reimbursement for bond premiums. In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (e) of this clause shall not apply to that portion of progress payments attributable to bond premiums.

(h) Final payment. The Government shall pay the amount due the Contractor under this contract after--

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against the Government arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 3727 and 41 U.S.C. 15).

(i) Limitation because of undefinitized work. Notwithstanding any provision of this contract, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(j) Interest computation on unearned amounts. In accordance with 31 U.S.C. 3903(c)(1), the amount payable under subparagraph (d)(2) of this clause shall be--

(1) Computed at the rate of average bond equivalent rates of 91-day Treasury bills auctioned at the most recent auction of such bills prior to the date the Contractor receives the unearned amount; and

(2) Deducted from the next available payment to the Contractor.

(End of clause)

52.232-23 ASSIGNMENT OF CLAIMS (JAN 1986)

(a) The Contractor, under the Assignment of Claims Act, as amended, 31 U.S.C. 3727, 41 U.S.C. 15 (hereafter referred to as "the Act"), may assign its rights to be paid amounts due or to become due as a result of the performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency. The assignee under such an assignment may thereafter further assign or reassign its right under the original assignment to any type of financing institution described in the preceding sentence.

(b) Any assignment or reassignment authorized under the Act and this clause shall cover all unpaid amounts payable under this contract, and shall not be made to more than one party, except that an assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in the financing of this contract.

(c) The Contractor shall not furnish or disclose to any assignee under this contract any classified document (including this contract) or information related to work under this contract until the Contracting Officer authorizes such action in writing.

(End of clause)

52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (FEB 2002)

Notwithstanding any other payment terms in this contract, the Government will make invoice payments under the terms and conditions specified in this clause. The Government considers payment as being made on the day a check is dated or the date of an electronic funds transfer. Definitions of pertinent terms are set forth in sections 2.101, 32.001, and 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see paragraph (a)(3) concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) Invoice payments--(1) Types of invoice payments. For purposes of this clause, there are several types of invoice payments that may occur under this contract, as follows:

(i) Progress payments, if provided for elsewhere in this contract, based on Contracting Officer approval of the estimated amount and value of work or services performed, including payments for reaching milestones in any project.

(A) The due date for making such payments is 14 days after the designated billing office receives a proper payment request. If the designated billing office fails to annotate the payment request with the actual date of receipt at the time of receipt, the payment due date is the 14th day after the date of the Contractor's payment request, provided the designated billing office receives a proper payment request and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) The due date for payment of any amounts retained by the Contracting Officer in accordance with the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, is as specified in the contract or, if not specified, 30 days after approval by the Contracting Officer for release to the Contractor.

(ii) Final payments based on completion and acceptance of all work and presentation of release of all claims against the Government arising by virtue of the contract, and payments for partial deliveries that have been accepted by the Government (e.g., each separate building, public work, or other division of the contract for which the price is stated separately in the contract).

(A) The due date for making such payments is the later of the following two events:

(1) The 30th day after the designated billing office receives a proper invoice from the Contractor.

(2) The 30th day after Government acceptance of the work or services completed by the Contractor. For a final invoice when the payment amount is subject to contract settlement actions (e.g., release of claims), acceptance is deemed to occur on the effective date of the contract settlement.

(B) If the designated billing office fails to annotate the invoice with the date of actual receipt at the time of receipt, the invoice payment due date is the 30th day after the date of the Contractor's invoice, provided the designated billing office receives a proper invoice and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(2) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(2)(i) through (a)(2)(xi) of this clause. If the invoice does not comply with these requirements, the designated billing office must return it within 7 days after receipt, with the reasons why it is not a proper invoice. When computing any interest penalty owed the Contractor, the Government will take into account if the Government notifies the Contractor of an improper invoice in an untimely manner.

(i) Name and address of the Contractor.

(ii) Invoice date and invoice number. (The Contractor should date invoices as close as possible to the date of mailing or transmission.)

(iii) Contract number or other authorization for work or services performed (including order number and contract line item number).

(iv) Description of work or services performed.

(v) Delivery and payment terms (e.g., discount for prompt payment terms).

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to notify in the event of a defective invoice.

(viii) For payments described in paragraph (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision (e.g., 52.232-38, Submission of Electronic Funds Transfer Information with Offer), contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(xi) Any other information or documentation required by the contract.

(3) Interest penalty. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if payment is not made by the due date and the conditions listed in paragraphs (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday, the designated payment office may make payment on the following working day without incurring a late payment interest penalty.

(i) The designated billing office received a proper invoice.

(ii) The Government processed a receiving report or other Government documentation authorizing payment and there was no disagreement over quantity, quality, Contractor compliance with any contract term or condition, or requested progress payment amount.

(iii) In the case of a final invoice for any balance of funds due the Contractor for work or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(4) Computing penalty amount. The Government will compute the interest penalty in accordance with the Office of Management and Budget prompt payment regulations at 5 CFR part 1315.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor for payments described in paragraph (a)(1)(ii) of this clause, Government acceptance or approval is deemed to occur constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. If actual acceptance or approval occurs within the constructive acceptance or approval period, the Government will base the determination of an interest penalty on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The prompt payment regulations at 5 CFR 1315.10(c) do not require the Government to pay interest penalties if payment delays are due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. The Government and the Contractor shall resolve claims involving disputes, and any interest that may be payable in accordance with the clause at FAR 52.233-1, Disputes.

(5) Discounts for prompt payment. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if the Government takes a discount for prompt payment improperly. The Government will calculate the interest penalty in accordance with the prompt payment regulations at 5 CFR part 1315.

(6) Additional interest penalty. (i) The designated payment office will pay a penalty amount, calculated in accordance with the prompt payment regulations at 5 CFR part 1315 in addition to the interest penalty amount only if--

(A) The Government owes an interest penalty of \$1 or more;

(B) The designated payment office does not pay the interest penalty within 10 days after the date the invoice amount is paid; and

(C) The Contractor makes a written demand to the designated payment office for additional penalty payment, in accordance with paragraph (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii)(A) The Contractor shall support written demands for additional penalty payments with the following data. The Government will not request any additional data. The Contractor shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) If there is no postmark or the postmark is illegible--

(1) The designated payment office that receives the demand will annotate it with the date of receipt provided the demand is received on or before the 40th day after payment was made; or

(2) If the designated payment office fails to make the required annotation, the Government will determine the demand's validity based on the date the Contractor has placed on the demand, provided such date is no later than the 40th day after payment was made.

(b) Contract financing payments. If this contract provides for contract financing, the Government will make contract financing payments in accordance with the applicable contract financing clause.

(c) Subcontract clause requirements. The Contractor shall include in each subcontract for property or services (including a material supplier) for the purpose of performing this contract the following:

(1) Prompt payment for subcontractors. A payment clause that obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract.

(2) Interest for subcontractors. An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty for each payment not made in accordance with the payment clause--

(i) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and

(ii) Computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(3) Subcontractor clause flowdown. A clause requiring each subcontractor to use:

(i) Include a payment clause and an interest penalty clause conforming to the standards set forth in paragraphs (c)(1) and (c)(2) of this clause in each of its subcontracts; and

(ii) Require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

(d) Subcontract clause interpretation. The clauses required by paragraph (c) of this clause shall not be construed to impair the right of the Contractor or a subcontractor at any tier to negotiate, and to include in their subcontract, provisions that--

(1) Retainage permitted. Permit the Contractor or a subcontractor to retain (without cause) a specified percentage of each progress payment otherwise due to a subcontractor for satisfactory performance under the subcontract without incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions agreed to by the parties to the subcontract, giving such recognition as the parties deem appropriate to the ability of a subcontractor to furnish a performance bond and a payment bond;

(2) Withholding permitted. Permit the Contractor or subcontractor to make a determination that part or all of the subcontractor's request for payment may be withheld in accordance with the subcontract agreement; and

(3) Withholding requirements. Permit such withholding without incurring any obligation to pay a late payment penalty if--

(i) A notice conforming to the standards of paragraph (g) of this clause previously has been furnished to the subcontractor; and

(ii) The Contractor furnishes to the Contracting Officer a copy of any notice issued by a Contractor pursuant to paragraph (d)(3)(i) of this clause.

(e) Subcontractor withholding procedures. If a Contractor, after making a request for payment to the Government but before making a payment to a subcontractor for the subcontractor's performance covered by the payment request, discovers that all or a portion of the payment otherwise due such subcontractor is subject to withholding from the subcontractor in accordance with the subcontract agreement, then the Contractor shall--

(1) Subcontractor notice. Furnish to the subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon ascertaining the cause giving rise to a withholding, but prior to the due date for subcontractor payment;

(2) Contracting Officer notice. Furnish to the Contracting Officer, as soon as practicable, a copy of the notice furnished to the subcontractor pursuant to paragraph (e)(1) of this clause;

(3) Subcontractor progress payment reduction. Reduce the subcontractor's progress payment by an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (e)(1) of this clause;

(4) Subsequent subcontractor payment. Pay the subcontractor as soon as practicable after the correction of the identified subcontract performance deficiency, and--

(i) Make such payment within--

(A) Seven days after correction of the identified subcontract performance deficiency (unless the funds therefor must be recovered from the Government because of a reduction under paragraph (e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) Notice to Contracting Officer. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under paragraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) Interest to Government. Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under paragraph (e)(5)(i) of this clause.

(f) Third-party deficiency reports--(1) Withholding from subcontractor. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a "second-tier subcontractor") a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under paragraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (f)(1)(i) of this clause.

(2) Subsequent payment or interest charge. As soon as practicable, but not later than 7 days after receipt of satisfactory written notification that the identified subcontract performance deficiency has been corrected, the Contractor shall--

(i) Pay the amount withheld under paragraph (f)(1)(ii) of this clause to such first-tier subcontractor; or

(ii) Incur an obligation to pay a late payment interest penalty to such first-tier subcontractor computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(g) Written notice of subcontractor withholding. The Contractor shall issue a written notice of any withholding to a subcontractor (with a copy furnished to the Contracting Officer), specifying--

- (1) The amount to be withheld;
- (2) The specific causes for the withholding under the terms of the subcontract; and
- (3) The remedial actions to be taken by the subcontractor in order to receive payment of the amounts withheld.

(h) Subcontractor payment entitlement. The Contractor may not request payment from the Government of any amount withheld or retained in accordance with paragraph (d) of this clause until such time as the Contractor has determined and certified to the Contracting Officer that the subcontractor is entitled to the payment of such amount.

(i) Prime-subcontractor disputes. A dispute between the Contractor and subcontractor relating to the amount or entitlement of a subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to paragraph (c) of this clause does not constitute a dispute to which the Government is a party. The Government may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

(j) Preservation of prime-subcontractor rights. Except as provided in paragraph (i) of this clause, this clause shall not limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or a subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor or deficient subcontract performance or nonperformance by a subcontractor.

(k) Non-recourse for prime contractor interest penalty. The Contractor's obligation to pay an interest penalty to a subcontractor pursuant to the clauses included in a subcontract under paragraph (c) of this clause shall not be construed to be an obligation of the Government for such interest penalty. A cost-reimbursement claim may not include any amount for reimbursement of such interest penalty.

(l) Overpayments. If the Contractor becomes aware of a duplicate payment or that the Government has otherwise overpaid on an invoice payment, the Contractor shall immediately notify the Contracting Officer and request instructions for disposition of the overpayment.

(End of clause)

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION (OCT 2003)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term "EFT" refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

- (i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.

(f) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(g) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register separately in the CCR database and shall be paid by EFT in accordance with the terms of this clause. Notwithstanding any other requirement of this contract, payment to an ultimate recipient other than the Contractor, or a financial institution properly recognized under an assignment of claims pursuant to subpart 32.8, is not permitted. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(h) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.

(i) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the CCR database.

(End of Clause)

52.233-1 DISPUTES. (JUL 2002)

(a) This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613).

(b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved under this clause.

(c) Claim, as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding \$100,000 is not a claim under the Act until certified. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d)(1) A claim by the Contractor shall be made in writing and, unless otherwise stated in this contract, submitted within 6 years after accrual of the claim to the Contracting Officer for a written decision. A claim by the Government against the Contractor shall be subject to a written decision by the Contracting Officer.

(2)(i) The contractors shall provide the certification specified in subparagraph (d)(2)(iii) of this clause when submitting any claim -

(A) Exceeding \$100,000; or

(B) Regardless of the amount claimed, when using -

(1) Arbitration conducted pursuant to 5 U.S.C. 575-580; or

(2) Any other alternative means of dispute resolution (ADR) technique that the agency elects to handle in accordance with the Administrative Dispute Resolution Act (ADRA).

(ii) The certification requirement does not apply to issues in controversy that have not been submitted as all or part of a claim.

(iii) The certification shall state as follows: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am duly authorized to

certify the claim on behalf of the Contractor.

(3) The certification may be executed by any person duly authorized to bind the Contractor with respect to the claim.

(e) For Contractor claims of \$100,000 or less, the Contracting Officer must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over \$100,000, the Contracting Officer must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) If the claim by the Contractor is submitted to the Contracting Officer or a claim by the Government is presented to the Contractor, the parties, by mutual consent, may agree to use alternative dispute resolution (ADR). If the Contractor refuses an offer for ADR, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the request.

(h) The Government shall pay interest on the amount found due and unpaid from (1) the date the Contracting Officer receives the claim (certified, if required); or (2) the date that payment otherwise would be due, if that date is later, until the date of payment. With regard to claims having defective certifications, as defined in (FAR) 48 CFR 33.201, interest shall be paid from the date that the Contracting Officer initially receives the claim. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Contracting Officer receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(i) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the Contracting Officer.

(End of clause)

52.233-1 DISPUTES. (JUL 2002)

(a) This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613).

(b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved under this clause.

(c) Claim, as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding \$100,000 is not a claim under the Act until certified. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d)(1) A claim by the Contractor shall be made in writing and, unless otherwise stated in this contract, submitted within 6 years after accrual of the claim to the Contracting Officer for a written decision. A claim by the Government against the Contractor shall be subject to a written decision by the Contracting Officer.

(2)(i) The contractors shall provide the certification specified in subparagraph (d)(2)(iii) of this clause when submitting any claim -

(A) Exceeding \$100,000; or

(B) Regardless of the amount claimed, when using -

(1) Arbitration conducted pursuant to 5 U.S.C. 575-580; or

(2) Any other alternative means of dispute resolution (ADR) technique that the agency elects to handle in accordance with the Administrative Dispute Resolution Act (ADRA).

(ii) The certification requirement does not apply to issues in controversy that have not been submitted as all or part of a claim.

(iii) The certification shall state as follows: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am duly authorized to certify the claim on behalf of the Contractor.

(3) The certification may be executed by any person duly authorized to bind the Contractor with respect to the claim.

(e) For Contractor claims of \$100,000 or less, the Contracting Officer must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over \$100,000, the Contracting Officer must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) If the claim by the Contractor is submitted to the Contracting Officer or a claim by the Government is presented to the Contractor, the parties, by mutual consent, may agree to use alternative dispute resolution (ADR). If the Contractor refuses an offer for ADR, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the request.

(h) The Government shall pay interest on the amount found due and unpaid from (1) the date the Contracting Officer receives the claim (certified, if required); or (2) the date that payment otherwise would be due, if that date is later, until the date of payment. With regard to claims having defective certifications, as defined in (FAR) 48 CFR 33.201, interest shall be paid from the date that the Contracting Officer initially receives the claim. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Contracting Officer receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(i) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the Contracting Officer.

(End of clause)

52.233-3 PROTEST AFTER AWARD (AUG. 1996)

(a) Upon receipt of a notice of protest (as defined in FAR 33.101) or a determination that a protest is likely (see FAR 33.102(d)), the Contracting Officer may, by written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage.

Upon receipt of the final decision in the protest, the Contracting Officer shall either--

- (1) Cancel the stop-work order; or
 - (2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.
- (b) If a stop-work order issued under this clause is canceled either before or after a final decision in the protest, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if--
- (1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and
 - (2) The Contractor asserts its right to an adjustment within 30 days after the end of the period of work stoppage; provided, that if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal at any time before final payment under this contract.
- (c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.
- (d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.
- (e) The Government's rights to terminate this contract at any time are not affected by action taken under this clause.
- (f) If, as the result of the Contractor's intentional or negligent misstatement, misrepresentation, or miscertification, a protest related to this contract is sustained, and the Government pays costs, as provided in FAR 33.102(b)(2) or 33.104(h)(1), the Government may require the Contractor to reimburse the Government the amount of such costs. In addition to any other remedy available, and pursuant to the requirements of Subpart 32.6, the Government may collect this debt by offsetting the amount against any payment due the Contractor under any contract between the Contractor and the Government.

(End of clause)

52.236-2 DIFFERING SITE CONDITIONS (APR 1984)

As prescribed in 36.502, insert the following clause in solicitations and contracts when a fixed-price construction contract or a fixed-price dismantling, demolition, or removal of improvements contract is contemplated and the contract amount is expected to exceed the small purchase limitation. The Contracting Officer may insert the clause in solicitations and contracts when a fixed-price construction or a fixed-price contract for dismantling, demolition, or removal of improvements is contemplated and the contract amount is expected to be within the small purchase limitation.

- (a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of
 - (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or
 - (2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily

encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

(End of clause)

52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to

(1) conditions bearing upon transportation, disposal, handling, and storage of materials;

(2) the availability of labor, water, electric power, and roads;

(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site;

(4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

(End of clause)

52.236-5 MATERIAL AND WORKMANSHIP (APR 1984)

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in

the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

(End of clause)

52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984)

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(End of clause)

52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991)

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(End of clause)

52.236-8 OTHER CONTRACTS (APR 1984)

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that

will interfere with the performance of work by any other contractor or by Government employees.

(End of clause)

52.236-9 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984)

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(b) The Contractor shall protect from damage all existing improvements and utilities

(1) at or near the work site, and

(2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(End of clause)

52.236-10 OPERATIONS AND STORAGE AREAS (APR 1984)

(a) The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(c) The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

(End of clause)

52.236-11 USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)

(a) The Government shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the Government intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Government has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Government's possession or use, notwithstanding the terms of the clause in this contract entitled "Permits and Responsibilities." If prior possession or use by the Government delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

(End of clause)

52.236-12 CLEANING UP (APR 1984)

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

(End of clause)

52.236-13 ACCIDENT PREVENTION (NOV 1991)

(a) The Contractor shall provide and maintain work environments and procedures which will

(1) safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities;

(2) avoid interruptions of Government operations and delays in project completion dates; and

(3) control costs in the performance of this contract.

(b) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall-

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(c) If this contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S.

Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

(d) Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Contractor or the Contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(4) The Contractor shall insert this clause, including this paragraph (e), with appropriate changes in the designation of the parties, in subcontracts.

(End of clause)

52.236-14 AVAILABILITY AND USE OF UTILITY SERVICES (APR 1984)

(a) The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

(End of clause)

52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to

the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

(End of clause)

52.236-17 LAYOUT OF WORK (APR 1984)

The Contractor shall lay out its work from Government established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

(End of clause)

52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997)

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown," "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier

subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Government's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the Contractor.

(End of clause)

52.236-22 DESIGN WITHIN FUNDING LIMITATIONS (APR 1984)

(a) The Contractor shall accomplish the design services required under this contract so as to permit the award of a contract, using standard Federal Acquisition Regulation procedures for the construction of the facilities designed at a price that does not exceed the estimated construction contract price as set forth in paragraph (c) below. When bids or proposals for the construction contract are received that exceed the estimated price, the contractor shall perform such redesign and other services as are necessary to permit contract award within the funding limitation. These additional services shall be performed at no increase in the price of this contract. However, the Contractor shall not be required to perform such additional services at no cost to the Government if the unfavorable bids or proposals are the result of conditions beyond its reasonable control.

(b) The Contractor will promptly advise the Contracting Officer if it finds that the project being designed will exceed or is likely to exceed the funding limitations and it is unable to design a usable facility within these limitations. Upon receipt of such information, the Contracting Officer will review the Contractor's revised estimate of construction cost. The Government may, if it determines that the estimated construction contract price set forth in this contract is so low that award of a construction contract not in excess of such estimate is improbable, authorize a change in scope or materials as required to reduce the estimated construction cost to an amount within the estimated construction contract price set forth in paragraph (c) below, or the Government may adjust such estimated construction contract price. When bids or proposals are not solicited or are unreasonably delayed, the Government shall prepare an estimate of constructing the design submitted and such estimate shall be used in lieu of bids or proposals to determine compliance with the funding limitation.

(c) The estimated construction contract price for the project described in this contract is \$43.25M.

(End of clause)

52.236-23 RESPONSIBILITY OF THE ARCHITECT-ENGINEER CONTRACTOR (APR 1984)

(a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its designs, drawings, specifications, and other services.

(b) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract, and the Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of the services furnished under this contract.

(c) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

(d) If the Contractor is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

(End of clause)

52.236-26 PRECONSTRUCTION CONFERENCE (FEB 1995)

If the Contracting Officer decides to conduct a preconstruction conference, the successful offeror will be notified and will be required to attend. The Contracting Officer's notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed.

(End of clause)

52.242-13 BANKRUPTCY (JUL 1995)

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of Government contract numbers and contracting offices for all Government contracts against which final payment has not been made. This obligation remains in effect until final payment under this contract.

(End of clause)

52.242-14 SUSPENSION OF WORK (APR 1984)

(a) The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract. (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

(End of clause)

52.243-4 CHANGES (AUG 1987)

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes--

- (1) In the specifications (including drawings and designs);
- (2) In the method or manner of performance of the work;
- (3) In the Government-furnished facilities, equipment, materials, services, or site; or
- (4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating

- (1) the date, circumstances, and source of the order and
- (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an

adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after

(1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of the proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(End of clause)

52.243-5 CHANGES AND CHANGED CONDITIONS (APR 1984)

(a) The Contracting Officer may, in writing, order changes in the drawings and specifications within the general scope of the contract.

(b) The Contractor shall promptly notify the Contracting Officer, in writing, of subsurface or latent physical conditions differing materially from those indicated in this contract or unknown unusual physical conditions at the site before proceeding with the work.

(c) If changes under paragraph (a) or conditions under paragraph (b) increase or decrease the cost of, or time required for performing the work, the Contracting Officer shall make an equitable adjustment (see paragraph (d)) upon submittal of a "proposal for adjustment" (hereafter referred to as proposal) by the Contractor before final payment under the contract.

(d) The Contracting Officer shall not make an equitable adjustment under paragraph (b) unless--

(1) The Contractor has submitted and the Contracting Officer has received the required written notice; or

(2) The Contracting Officer waives the requirement for the written notice.

(e) Failure to agree to any adjustment shall be a dispute under the Disputes clause.

(End of clause)

52.244-2 SUBCONTRACTS (AUG 1998)

(a) Definitions. As used in this clause--

Approved purchasing system means a Contractor's purchasing system that has been reviewed and approved in accordance with Part 44 of the Federal Acquisition Regulation (FAR).

Consent to subcontract means the Contracting Officer's written consent for the Contractor to enter into a particular subcontract.

Subcontract means any contract, as defined in FAR Subpart 2.1, entered into by a subcontractor to furnish supplies or services for performance of the prime contract or a subcontract. It includes, but is not limited to, purchase orders, and changes and modifications to purchase orders.

(b) This clause does not apply to subcontracts for special test equipment when the contract contains the clause at FAR 52.245-18, Special Test Equipment.

(c) When this clause is included in a fixed-price type contract, consent to subcontract is required only on unpriced contract actions (including unpriced modifications or unpriced delivery orders), and only if required in accordance with paragraph (d) or (e) of this clause.

(d) If the Contractor does not have an approved purchasing system, consent to subcontract is required for any subcontract that--

(1) Is of the cost-reimbursement, time-and-materials, or labor-hour type; or

(2) Is fixed-price and exceeds--

(i) For a contract awarded by the Department of Defense, the Coast Guard, or the National Aeronautics and Space Administration, the greater of the simplified acquisition threshold or 5 percent of the total estimated cost of the contract; or

(ii) For a contract awarded by a civilian agency other than the Coast Guard and the National Aeronautics and Space Administration, either the simplified acquisition threshold or 5 percent of the total estimated cost of the contract.

(e) If the Contractor has an approved purchasing system, the Contractor nevertheless shall obtain the Contracting Officer's written consent before placing the following subcontracts:

(f)(1) The Contractor shall notify the Contracting Officer reasonably in advance of placing any subcontract or modification thereof for which consent is required under paragraph (c), (d), or (e) of this clause, including the following information:

(i) A description of the supplies or services to be subcontracted.

(ii) Identification of the type of subcontract to be used.

(iii) Identification of the proposed subcontractor.

(iv) The proposed subcontract price.

(v) The subcontractor's current, complete, and accurate cost or pricing data and Certificate of Current Cost or Pricing Data, if required by other contract provisions.

(vi) The subcontractor's Disclosure Statement or Certificate relating to Cost Accounting Standards when such data are required by other provisions of this contract.

(vii) A negotiation memorandum reflecting--

- (A) The principal elements of the subcontract price negotiations;
 - (B) The most significant considerations controlling establishment of initial or revised prices;
 - (C) The reason cost or pricing data were or were not required;
 - (D) The extent, if any, to which the Contractor did not rely on the subcontractor's cost or pricing data in determining the price objective and in negotiating the final price;
 - (E) The extent to which it was recognized in the negotiation that the subcontractor's cost or pricing data were not accurate, complete, or current; the action taken by the Contractor and the subcontractor; and the effect of any such defective data on the total price negotiated;
 - (F) The reasons for any significant difference between the Contractor's price objective and the price negotiated; and
 - (G) A complete explanation of the incentive fee or profit plan when incentives are used. The explanation shall identify each critical performance element, management decisions used to quantify each incentive element, reasons for the incentives, and a summary of all trade-off possibilities considered.
- (2) The Contractor is not required to notify the Contracting Officer in advance of entering into any subcontract for which consent is not required under paragraph (c), (d), or (e) of this clause.
- (g) Unless the consent or approval specifically provides otherwise, neither consent by the Contracting Officer to any subcontract nor approval of the Contractor's purchasing system shall constitute a determination--
- (1) Of the acceptability of any subcontract terms or conditions;
 - (2) Of the allowability of any cost under this contract; or
 - (3) To relieve the Contractor of any responsibility for performing this contract.
- (h) No subcontract or modification thereof placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement type subcontracts shall not exceed the fee limitations in FAR 15.404-4(c)(4)(i).
- (i) The Contractor shall give the Contracting Officer immediate written notice of any action or suit filed and prompt notice of any claim made against the Contractor by any subcontractor or vendor that, in the opinion of the Contractor, may result in litigation related in any way to this contract, with respect to which the Contractor may be entitled to reimbursement from the Government.
- (j) The Government reserves the right to review the Contractor's purchasing system as set forth in FAR Subpart 44.3.
- (k) Paragraphs (d) and (f) of this clause do not apply to the following subcontracts, which were evaluated during negotiations:

(End of clause)

52.244-4 SUBCONTRACTORS AND OUTSIDE ASSOCIATES AND CONSULTANTS (ARCHITECT-ENGINEER SERVICES) (AUG 1998)

Any subcontractors and outside associates or consultants required by the Contractor in connection with the services covered by the contract will be limited to individuals or firms that were specifically identified and agreed to during negotiations. The Contractor shall obtain the Contracting Officer's written consent before making any substitution for these subcontractors, associates, or consultants.

(End of clause)

52.244-5 COMPETITION IN SUBCONTRACTING (DEC 1996)

(a) The Contractor shall select subcontractors (including suppliers) on a competitive basis to the maximum practical extent consistent with the objectives and requirements of the contract.

(b) If the Contractor is an approved mentor under the Department of Defense Pilot Mentor-Protege Program (Pub. L. 101-510, section 831 as amended), the Contractor may award subcontracts under this contract on a noncompetitive basis to its proteges.

(End of clause)

52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS (APR 2003)

(a) Definitions.

"Commercial item", has the meaning contained in the clause at 52.202-1, Definitions.

"Subcontract", includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or nondevelopmental items as components of items to be supplied under this contract.

(c) (1) The Contractor shall insert the following clauses in subcontracts for commercial items:

(i) 52.219-8, Utilization of Small Business Concerns (OCT 2000) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds \$500,000 (\$1,000,000 for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(ii) 52.222-26, Equal Opportunity (Apr 2002) (E.O. 11246).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212(a)).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (JUN 1998) (29 U.S.C. 793).

(v) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (APR 2003) (46 U.S.C. Appx 1241 and 10 U.S.C. 2631) (flow down required in accordance with paragraph (d) of FAR clause 52.247-64).

(2) While not required, the Contractor may flow down to subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(d) The Contractor shall include the terms of this clause, including this paragraph (d), in subcontracts awarded under this contract.

(End of clause)

52.246-12 INSPECTION OF CONSTRUCTION (AUG 1996)

(a) Definition. "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Government. All work shall be conducted under the general direction of the Contracting Officer and is subject to Government inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Government inspections and tests are for the sole benefit of the Government and do not--

(1) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Government after acceptance of the completed work under paragraph (i) of this section.

(d) The presence or absence of a Government inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.

(e) The Contractor shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Government may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The Contractor shall, without charge, replace or correct work found by the Government not to conform to contract requirements, unless in the public interest the Government consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(g) If the Contractor does not promptly replace or correct rejected work, the Government may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.

(h) If, before acceptance of the entire work, the Government decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the

work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Contracting Officer shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Government shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Government's rights under any warranty or guarantee.

(End of clause)

52.248-3 VALUE ENGINEERING--CONSTRUCTION (FEB 2000)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any instant contract savings realized from accepted VECP's, in accordance with paragraph (f) below.

(b) Definitions. "Collateral costs," as used in this clause, means agency costs of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistic support. The term does not include the normal administrative costs of processing the VECP.

"Instant contract savings," as used in this clause, means the estimated reduction in Contractor cost of performance resulting from acceptance of the VECP, minus allowable Contractor's development and implementation costs, including subcontractors' development and implementation costs (see paragraph (h) below).

"Value engineering change proposal (VECP)" means a proposal that--

- (1) Requires a change to this, the instant contract, to implement; and
- (2) Results in reducing the contract price or estimated cost without impairing essential functions or characteristics; provided, that it does not involve a change--

(i) In deliverable end item quantities only; or

(ii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (7) below. If the proposed change is affected by contractually required configuration

management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

- (1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.
- (2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.
- (3) A separate, detailed cost estimate for
 - (i) the affected portions of the existing contract requirement and
 - (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (h) below.
- (4) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.
- (5) A prediction of any effects the proposed change would have on collateral costs to the agency.
- (6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.
- (7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.
- (d) Submission. The Contractor shall submit VECP's to the Resident Engineer at the worksite, with a copy to the Contracting Officer.
- (e) Government action.
 - (1) The Contracting Officer will notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer will notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

If the VECP is not accepted, the Contracting Officer will notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause. The Contracting Officer may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

- (f) Sharing.

(1) Rates. The Government's share of savings is determined by subtracting Government costs from instant contract savings and multiplying the result by

- (i) 45 percent for fixed-price contracts or
- (ii) 75 percent for cost-reimbursement contracts.

(2) Payment. Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a modification to this contract to--

- (i) Accept the VECP;
- (ii) Reduce the contract price or estimated cost by the amount of instant contract savings; and
- (iii) Provide the Contractor's share of savings by adding the amount calculated to the contract price or fee.

(g) Collateral savings. If a VECP is accepted, the Contracting Officer will increase the instant contract amount by 20 percent of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings will not exceed the contract's firm-fixed-price or estimated cost, at the time the VECP is accepted, or \$100,000, whichever is greater. The Contracting Officer is the sole determiner of the amount of collateral savings.

(h) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of \$50,000 or more and may include one in subcontracts of lesser value. In computing any adjustment in this contract's price under paragraph (f) above, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Government under this contract, but shall exclude any value engineering incentive payments to a subcontractor. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that these payments shall not reduce the Government's share of the savings resulting from the VECP.

(i) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

"These data, furnished under the Value Engineering-- Construction clause of contract , shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations." If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

52.249-2 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SEP 1996) - ALTERNATE I (SEP 1996)

(a) The Government may terminate performance of work under this contract in whole or, from time to time, in part if the Contracting Officer determines that a termination is in the Government's interest. The Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

(b) After receipt of a Notice of Termination, and except as directed by the Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

(1) Stop work as specified in the notice.

(2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.

(3) Terminate all subcontracts to the extent they relate to the work terminated.

(4) Assign to the Government, as directed by the Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Government shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

(5) With approval or ratification to the extent required by the Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

(6) As directed by the Contracting Officer, transfer title and deliver to the Government (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Government.

(7) Complete performance of the work not terminated.

(8) Take any action that may be necessary, or that the Contracting Officer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Government has or may acquire an interest.

(9) Use its best efforts to sell, as directed or authorized by the Contracting Officer, any property of the types referred to in subparagraph (b)(6) of this clause; provided, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Government under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Contracting Officer.

(c) The Contractor shall submit complete termination inventory schedules no later than 120 days from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 120-day period.

(d) After expiration of the plant clearance period as defined in Subpart 45.6 of the Federal Acquisition Regulation, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the Contracting Officer. The Contractor may request the Government to remove those items or enter into an agreement for their storage. Within 15 days, the Government will accept title to those items and remove them or enter into a storage agreement. The Contracting Officer may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.

(e) After termination, the Contractor shall submit a final termination settlement proposal to the Contracting Officer in the form and with the certification prescribed by the Contracting Officer. The Contractor shall submit the proposal promptly, but no later than 1 year from the effective date of termination, unless extended in writing by the Contracting

Officer upon written request of the Contractor within this 1-year period. However, if the Contracting Officer determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Contracting Officer may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.

(f) Subject to paragraph (e) of this clause, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount to be paid or remaining to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (g) or paragraph (g) of this clause, exclusive of costs shown in subparagraph (g)(3) of this clause, may not exceed the total contract price as reduced by (1) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be modified, and the Contractor paid the agreed amount. Paragraph (g) of this clause shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(g) If the Contractor and Contracting Officer fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under paragraph (f) of this clause:

(1) For contract work performed before the effective date of termination, the total (without duplication of any items) of--

(i) The cost of this work;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (g)(1)(i) of this clause; and

(iii) A sum, as profit on subdivision (g)(1)(i) of this clause, determined by the Contracting Officer under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(2) The reasonable costs of settlement of the work terminated, including--

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(h) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (g) of this clause, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer.

(i) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

(j) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under paragraph (e), (g), or (l) of this clause, except that if the Contractor failed to submit the termination settlement proposal or request for equitable adjustment within the time provided in paragraph (e) or (l), respectively, and failed to request a time extension, there is no right of appeal.

(k) In arriving at the amount due the Contractor under this clause, there shall be deducted--

(1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;

(2) Any claim which the Government has against the Contractor under this contract; and

(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.

(l) If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Contracting Officer.

(m)(1) The Government may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.

(n) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

(End of clause)

52.249-10 DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if--

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include

- (i) acts of God or of the public enemy,
- (ii) acts of the Government in either its sovereign or contractual capacity,
- (iii) acts of another Contractor in the performance of a contract with the Government,
- (iv) fires,
- (v) floods,
- (vi) epidemics,
- (vii) quarantine restrictions,
- (viii) strikes,
- (ix) freight embargoes,
- (x) unusually severe weather, or delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within 10 days from the beginning of any delay (unless extended by the Contracting Officer), notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Contracting Officer shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Government.

The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

[Insert one or more Internet addresses]

(End of clause)

52.253-1 COMPUTER GENERATED FORMS (JAN 1991)

- (a) Any data required to be submitted on a Standard or Optional Form prescribed by the Federal Acquisition Regulation (FAR) may be submitted on a computer generated version of the form, provided there is no change to the name, content, or sequence of the data elements on the form, and provided the form carries the Standard or Optional Form number and edition date.
- (b) Unless prohibited by agency regulations, any data required to be submitted on an agency unique form prescribed by an agency supplement to the FAR may be submitted on a computer generated version of the form provided there is no change to the name, content, or sequence of the data elements on the form and provided the form carries the agency form number and edition date.
- (5) If the Contractor submits a computer generated version of a form that is different than the required form, then the rights and obligations of the parties will be determined based on the content of the required form.

(End of clause)

252.201-7000 CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)

- (a) "Definition. Contracting officer's representative" means an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized in writing by the contracting officer to perform specific technical or administrative functions.
- (b) If the Contracting Officer designates a contracting officer's representative (COR), the Contractor will receive a copy of the written designation. It will specify the extent of the COR's authority to act on behalf of the contracting officer. The COR is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract.

(End of clause)

252.203-7001 PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE-CONTRACT-RELATED FELONIES (MAR 1999)

- (a) Definitions. As used in this clause—

(1) "Arising out of a contract with the DoD" means any act in connection with—

(i) Attempting to obtain;

(ii) Obtaining, or

(iii) Performing a contract or first-tier subcontract of any agency, department, or component of the Department of Defense (DoD).

(2) "Conviction of fraud or any other felony" means any conviction for fraud or a felony in violation of state or Federal criminal statutes, whether entered on a verdict or plea, including a plea of *nolo contendere*, for which sentence has been imposed.

(3) "Date of conviction" means the date judgment was entered against the individual.

(b) Any individual who is convicted after September 29, 1988, of fraud or any other felony arising out of a contract with the DoD is prohibited from serving--

- (1) In a management or supervisory capacity on any DoD contract or first-tier subcontract;
- (2) On the board of directors of any DoD contractor or first-tier subcontractor;
- (3) As a consultant, agent, or representative for any DoD contractor or first-tier subcontractor; or
- (4) In any other capacity with the authority to influence, advise, or control the decisions of any DoD contractor or subcontractor with regard to any DoD contract or first-tier subcontract.

(c) Unless waived, the prohibition in paragraph (b) of this clause applies for not less than 5 years from the date of conviction.

(d) 10 U.S.C. 2408 provides that a defense contractor or first-tier subcontractor shall be subject to a criminal penalty of not more than \$500,000 if convicted of knowingly—

- (1) Employing a person under a prohibition specified in paragraph (b) of this clause; or
- (2) Allowing such a person to serve on the board of directors of the contractor or first-tier subcontractor.

(e) In addition to the criminal penalties contained in 10 U.S.C. 2408, the Government may consider other available remedies, such as—

- (1) Suspension or debarment;
- (2) Cancellation of the contract at no cost to the Government; or
- (3) Termination of the contract for default.

(f) The Contractor may submit written requests for waiver of the prohibition in paragraph (b) of this clause to the Contracting Officer. Requests shall clearly identify—

- (1) The person involved;
- (2) The nature of the conviction and resultant sentence or punishment imposed;
- (3) The reasons for the requested waiver; and
- (4) An explanation of why a waiver is in the interest of national security.

(g) The Contractor agrees to include the substance of this clause, appropriately modified to reflect the identity and relationship of the parties, in all first-tier subcontracts exceeding the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation, except those for commercial items or components.

(h) Pursuant to 10 U.S.C. 2408(c), defense contractors and subcontractors may obtain information as to whether a particular person has been convicted of fraud or any other felony arising out of a contract with the DoD by contacting The Office of Justice Programs, The Denial of Federal Benefits Office, U.S. Department of Justice, telephone (202) 616-3507.

(End of clause)

252.203-7002 DISPLAY OF DOD HOTLINE POSTER (DEC 1991)

(a) The Contractor shall display prominently in common work areas within business segments performing work under Department of Defense (DoD) contracts, DoD Hotline Posters prepared by the DoD Office of the Inspector General.

(b) DoD Hotline Posters may be obtained from the DoD Inspector General, ATTN: Defense Hotline, 400 Army Navy Drive, Washington, DC 22202-2884.

(6) The Contractor need not comply with paragraph (a) of this clause if it has established a mechanism, such as a hotline, by which employees may report suspected instances of improper conduct, and instructions that encourage employees to make such reports.

(End of clause)

252.204-7000 DISCLOSURE OF INFORMATION (DEC 1991)

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless--

(1) The Contracting Officer has given prior written approval; or

(2) The information is otherwise in the public domain before the date of release.

(b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

(c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

(End of clause)

252.204-7003 CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT (APR 1992)

The Contractor's procedures for protecting against unauthorized disclosure of information shall not require Department of Defense employees or members of the Armed Forces to relinquish control of their work products, whether classified or not, to the contractor.

(End of clause)

252.209-7004 SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) Unless the Government determines that there is a compelling reason to do so, the Contractor shall not enter into any subcontract in excess of \$25,000 with a firm, or subsidiary of a firm, that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country.

(b) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country. The notice must include the name of the proposed subcontractor notwithstanding its inclusion on the List of Parties Excluded From Federal Procurement and Nonprocurement Programs.

(End of clause)

252.215-7000 PRICING ADJUSTMENTS (DEC 1991)

The term "pricing adjustment," as used in paragraph (a) of the clauses entitled "Price Reduction for Defective Cost or Pricing Data - Modifications," "Subcontractor Cost or Pricing Data," and "Subcontractor Cost or Pricing Data - Modifications," means the aggregate increases and/or decreases in cost plus applicable profits.

(End of clause)

252.223-7004 DRUG-FREE WORK FORCE (SEP 1988)

(a) Definitions.

(1) "Employee in a sensitive position," as used in this clause, means an employee who has been granted access to classified information; or employees in other positions that the Contractor determines involve national security; health or safety, or functions other than the foregoing requiring a high degree of trust and confidence.

(2) "Illegal drugs," as used in this clause, means controlled substances included in Schedules I and II, as defined by section 802(6) of title 21 of the United States Code, the possession of which is unlawful under chapter 13 of that Title. The term "illegal drugs" does not mean the use of a controlled substance pursuant to a valid prescription or other uses authorized by law.

(b) The Contractor agrees to institute and maintain a program for achieving the objective of a drug-free work force. While this clause defines criteria for such a program, contractors are encouraged to implement alternative approaches comparable to the criteria in paragraph (c) that are designed to achieve the objectives of this clause.

(c) Contractor programs shall include the following, or appropriate alternatives:

(1) Employee assistance programs emphasizing high level direction, education, counseling, rehabilitation, and coordination with available community resources;

(2) Supervisory training to assist in identifying and addressing illegal drug use by Contractor employees;

(3) Provision for self-referrals as well as supervisory referrals to treatment with maximum respect for individual confidentiality consistent with safety and security issues;

(4) Provision for identifying illegal drug users, including testing on a controlled and carefully monitored basis. Employee drug testing programs shall be established taking account of the following:

(i) The Contractor shall establish a program that provides for testing for the use of illegal drugs by employees in sensitive positions. The extent of and criteria for such testing shall be determined by the Contractor based on considerations that include the nature of the work being performed under the contract, the employee's duties, and efficient use of Contractor resources, and the risks to health, safety, or national security that could result from the failure of an employee adequately to discharge his or her position.

(ii) In addition, the Contractor may establish a program for employee drug testing--

(A) When there is a reasonable suspicion that an employee uses illegal drugs; or

(B) When an employees has been involved in an accident or unsafe practice;

(C) As part of or as a follow-up to counseling or rehabilitation for illegal drug use;

(D) As part of a voluntary employee drug testing program.

(iii) The Contractor may establish a program to test applicants for employment for illegal drug use.

(iv) For the purpose of administering this clause, testing for illegal drugs may be limited to those substances for which testing is prescribed by section 2..1 of subpart B of the "Mandatory Guidelines for Federal Workplace Drug Testing Programs" (53 FR 11980 (April 11, 1988), issued by the Department of Health and Human Services.

(d) Contractors shall adopt appropriate personnel procedures to deal with employees who are found to be using drugs illegally. Contractors shall not allow any employee to remain on duty or perform in a sensitive position who is found to use illegal drugs until such times as the Contractor, in accordance with procedures established by the Contractor, determines that the employee may perform in such a position.

(e) The provisions of this clause pertaining to drug testing program shall not apply to the extent that are inconsistent with state or local law, or with an existing collective bargaining agreement; provided that with respect to the latter, the Contractor agrees those issues that are in conflict will be a subject of negotiation at the next collective bargaining session.

(End of clause)

252.223-7006 PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS (APR 1993)

(a) "Definitions".

As used in this clause --

(1) "Storage" means a non-transitory, semi-permanent or permanent holding, placement, or leaving of material. It does not include a temporary accumulation of a limited quantity of a material used in or a waste generated or resulting from authorized activities, such as servicing, maintenance, or repair of Department of Defense (DoD) items, equipment, or facilities.

(2) "Toxic or hazardous materials" means:

(i) Materials referred to in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. 9601(14)) and materials designated under section 102 of CERCLA (42 U.S.C. 9602) (40 CFR part 302);

- (ii) Materials that are of an explosive, flammable, or pyrotechnic nature; or
 - (iii) Materials otherwise identified by the Secretary of Defense as specified in DoD regulations.
- (b) In accordance with 10 U.S.C. 2692, the Contractor is prohibited from storing or disposing of non-DoD-owned toxic or hazardous materials on a DoD installation, except to the extent authorized by a statutory exception to 10 U.S.C. 2692 or as authorized by the Secretary of Defense or his designee.
- (End of clause)

252.225-7031 SECONDARY ARAB BOYCOTT OF ISRAEL (APR 2003)

- (a) Definitions. As used in this provision--
- (1) Foreign person means any person (including any individual, partnership, corporation, or other form of association) other than a United States person.
 - (2) United States person is defined in 50 U.S.C. App. 2415(2) and means--
 - (i) Any United States resident or national (other than an individual resident outside the United States who is employed by other than a United States person);
 - (ii) Any domestic concern (including any permanent domestic establishment of any foreign concern); and
 - (iii) Any foreign subsidiary or affiliate (including any permanent foreign establishment) of any domestic concern that is controlled in fact by such domestic concern.
- (b) Certification. If the offeror is a foreign person, the offeror certifies, by submission of an offer, that it--
- (1) Does not comply with the Secondary Arab Boycott of Israel; and
 - (2) Is not taking or knowingly agreeing to take any action, with respect to the Secondary Boycott of Israel by Arab countries, which 50 U.S.C. App. 2407(a) prohibits a United States person from taking.
- (End of provision)

252.225-7036 BUY AMERICAN ACT--NORTH AMERICAN FREE TRADE AGREEMENT IMPLEMENTATION ACT--BALANCE OF PAYMENTS PROGRAM (APR 2003)

- (a) Definitions. As used in this clause--
- (1) Component means an article, material, or supply incorporated directly into an end product.
 - (2) Domestic end product means--
 - (i) An unmanufactured end product that has been mined or produced in the United States; or
 - (ii) An end product manufactured in the United States if the cost of its qualifying country components and its components that are mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. The cost of components includes transportation costs to the place of incorporation into the end

product and U.S. duty (whether or not a duty-free entry certificate is issued). Scrap generated, collected, and prepared for processing in the United States is considered domestic. A component is considered to have been mined, produced, or manufactured in the United States (regardless of its source in fact) if the end product in which it is incorporated is manufactured in the United States and the component is of a class or kind for which the Government has determined that--

(A) Sufficient and reasonably available commercial quantities of a satisfactory quality are not mined, produced, or manufactured in the United States; or

(B) It is inconsistent with the public interest to apply the restrictions of the Buy American Act.

(3) End product means those articles, materials, and supplies to be acquired under this contract for public use.

(4) Foreign end product means an end product other than a domestic end product.

(5) North American Free Trade Agreement (NAFTA) country means Canada or Mexico.

(6) NAFTA country end product means an article that--

(i) Is wholly the growth, product, or manufacture of a NAFTA country; or

(ii) In the case of an article that consists in whole or in part of materials from another country or instrumentality, has been substantially transformed in a NAFTA country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services (except transportation services) incidental to its supply, provided that the value of those incidental services does not exceed the value of the product itself.

(7) Qualifying country means any country set forth in subsection 225.872-1 of the Defense Federal Acquisition Regulation Supplement.

(8) Qualifying country component means a component mined, produced, or manufactured in a qualifying country.

(9) Qualifying country end product means--

(i) An unmanufactured end product mined or produced in a qualifying country; or

(ii) An end product manufactured in a qualifying country if the cost of the following types of components exceeds 50 percent of the cost of all its components:

(A) Components mined, produced, or manufactured in a qualifying country.

(B) Components mined, produced, or manufactured in the United States.

(C) Components of foreign origin of a class or kind for which the Government has determined that sufficient and reasonably available commercial quantities of a satisfactory quality are not mined, produced, or manufactured in the United States.

(10) United States means the United States, its possessions, Puerto Rico, and any other place subject to its jurisdiction, but does not include leased bases or trust territories.

(b) This clause implements the Buy American Act (41 U.S.C. Section 10a-d), the Balance of Payments Program, and the North American Free Trade Agreement Implementation Act of 1993 (19 U.S.C. 3301 note). Unless otherwise specified, this clause applies to all items in the Schedule.

(c) The Contractor shall deliver under this contract only domestic end products unless, in its offer, it specified delivery of qualifying country, NAFTA country, or other foreign end products in the Buy American Act--North American Free Trade Agreement Implementation Act--Balance of Payments Program Certificate provision of the solicitation. If the Contractor certified in its offer that it will deliver a qualifying country end product or a NAFTA country end product, the Contractor shall deliver a qualifying country end product, a NAFTA country end product, or, at the Contractor's option, a domestic end product.

(d) The contract price does not include duty for end products or components for which the Contractor will claim duty-free entry.

(End of clause)

252.226-7001 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES, AND HAWAIIAN SMALL BUSINESS CONCERNS (OCT 2003)

(a) Definitions. As used in this clause--

Indian means any person who is a member of any Indian tribe, band, group, pueblo, or community that is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs (BIA) in accordance with 25 U.S.C. 1452(c) and any "Native" as defined in the Alaska Native Claims Settlement Act (43 U.S.C. 1601).

Indian organization means the governing body of any Indian tribe or entity established or recognized by the governing body of an Indian tribe for the purposes of 25 U.S.C. chapter 17.

Indian-owned economic enterprise means any Indian-owned (as determined by the Secretary of the Interior) commercial, industrial, or business activity established or organized for the purpose of profit, provided that Indian ownership constitutes not less than 51 percent of the enterprise.

Indian tribe means any Indian tribe, band, group, pueblo, or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, that is recognized by the Federal Government as eligible for services from BIA in accordance with 25 U.S.C. 1452(c).

Interested party means a contractor or an actual or prospective offeror whose direct economic interest would be affected by the award of a subcontract or by the failure to award a subcontract.

Native Hawaiian small business concern means an entity that is --

(1) A small business concern as defined in section 3 of the Small Business Act (15 U.S.C. 632) and relevant implementing regulations; and

(2) Owned and controlled by a Native Hawaiian as defined in 25 U.S.C. 4221(9).

(b) The Contractor shall use its best efforts to give Indian organizations, Indian-owned economic enterprises, and Native Hawaiian small business concerns the maximum practicable opportunity to participate in the subcontracts it awards, to the fullest extent consistent with efficient performance of the contract.

(c) The Contracting Officer and the Contractor, acting in good faith, may rely on the representation of an Indian organization, Indian-owned economic enterprise, or Native Hawaiian small business concern as to its eligibility, unless an interested party challenges its status or the Contracting Officer has independent reason to question that status.

(d) In the event of a challenge to the representation of a subcontractor, the Contracting Officer will refer the matter to--
-

(1) For matters relating to Indian organizations or Indian-owned economic enterprises: U.S. Department of the Interior, Bureau of Indian Affairs, Attn: Chief, Division of Contracting and Grants Administration, 1849 C Street NW, MS-2626-MIB, Washington, DC 20240-4000. The BIA will determine the eligibility and will notify the Contracting Officer.

(2) For matters relating to Native Hawaiian small business concerns: Department of Hawaiian Home Lands, PO Box 1879, Honolulu, HI 96805. The Department of Hawaiian Home Lands will determine the eligibility and will notify the Contracting Officer.

(e) No incentive payment will be made--

(1) While a challenge is pending; or

(2) If a subcontractor is determined to be an ineligible participant.

(f)(1) The Contractor, on its own behalf or on behalf of a subcontractor at any tier, may request an incentive payment in accordance with this clause.

(2) The incentive amount that may be requested is 5 percent of the estimated cost, target cost, or fixed price included in the subcontract at the time of award to the Indian organization, Indian-owned economic enterprise, or Native Hawaiian small business concern.

(3) In the case of a subcontract for commercial items, the Contractor may receive an incentive payment only if the subcontracted items are produced or manufactured in whole or in part by an Indian organization, Indian-owned economic enterprise, or Native Hawaiian small business concern.

(4) The Contractor has the burden of proving the amount claimed and shall assert its request for an incentive payment prior to completion of contract performance.

(5) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, will authorize an incentive payment of 5 percent of the estimated cost, target cost, or fixed price included in the subcontract awarded to the Indian organization, Indian-owned economic enterprise, or Native Hawaiian small business concern.

(6) If the Contractor requests and receives an incentive payment on behalf of a subcontractor, the Contractor is obligated to pay the subcontractor the incentive amount.

(g) The Contractor shall insert the substance of this clause, including this paragraph (g), in all subcontracts exceeding \$500,000 for which further subcontracting opportunities may exist.

(End of clause)

252.227-7023 DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF GOVERNMENT. (MAR 1979)

All designs, drawings, specifications, notes and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design or construction without additional compensation to the Contractor. The Government shall be considered the "person for whom the work was prepared" for the purpose of authorship in any copyrightable work under 17 U.S.C. 201(b). With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights nor establish any claim under the design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in this contract, the Contractor shall have the right to retain copies of all works beyond such period.

(End of clause)

252.227-7033 RIGHTS IN SHOP DRAWINGS (APR 1966)

(a) Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower-tier subcontractor pursuant to a construction contract, showing in detail (i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(b) This clause, including this paragraph (b), shall be included in all subcontracts hereunder at any tier.

252.231-7000 SUPPLEMENTAL COST PRINCIPLES (DEC 1991)

When the allowability of costs under this contract is determined in accordance with part 31 of the Federal Acquisition Regulation (FAR), allowability shall also be determined in accordance with part 231 of the Defense FAR Supplement, in effect on the date of this contract.

(End of clause)

252.236-7000 MODIFICATION PROPOSALS - PRICE BREAKDOWN. (DEC 1991)

(a) The Contractor shall furnish a price breakdown, itemized as required and within the time specified by the Contracting Officer, with any proposal for a contract modification.

(b) The price breakdown --

(1) Must include sufficient detail to permit an analysis of profit, and of all costs for --

(i) Material;

(ii) Labor;

(iii) Equipment;

(iv) Subcontracts; and

(v) Overhead; and

(2) Must cover all work involved in the modification, whether the work was deleted, added, or changed.

(c) The Contractor shall provide similar price breakdowns to support any amounts claimed for subcontracts.

(d) The Contractor's proposal shall include a justification for any time extension proposed.

252.242-7000 POSTAWARD CONFERENCE (DEC 1991)

The Contractor agrees to attend any postaward conference convened by the contracting activity or contract administration office in accordance with Federal Acquisition Regulation subpart 42.5.

(End of clause)

252.243-7001 PRICING OF CONTRACT MODIFICATIONS (DEC 1991)

When costs are a factor in any price adjustment under this contract, the contract cost principles and procedures in FAR part 31 and DFARS part 231, in effect on the date of this contract, apply.

252.243-7002 REQUESTS FOR EQUITABLE ADJUSTMENT (MAR 1998)

(a) The amount of any request for equitable adjustment to contract terms shall accurately reflect the contract adjustment for which the Contractor believes the Government is liable. The request shall include only costs for performing the change, and shall not include any costs that already have been reimbursed or that have been separately claimed. All indirect costs included in the request shall be properly allocable to the change in accordance with applicable acquisition regulations.

(b) In accordance with 10 U.S.C. 2410(a), any request for equitable adjustment to contract terms that exceeds the simplified acquisition threshold shall bear, at the time of submission, the following certificate executed by an individual authorized to certify the request on behalf of the Contractor:

I certify that the request is made in good faith, and that the supporting data are accurate and complete to the best of my knowledge and belief.

(Official's Name)

(Title)

(c) The certification in paragraph (b) of this clause requires full disclosure of all relevant facts, including--

(1) Cost or pricing data if required in accordance with subsection 15.403-4 of the Federal Acquisition Regulation (FAR); and

(2) Information other than cost or pricing data, in accordance with subsection 15.403-3 of the FAR, including actual cost data and data to support any estimated costs, even if cost or pricing data are not required.

(d) The certification requirement in paragraph (b) of this clause does not apply to----

- (1) Requests for routine contract payments; for example, requests for payment for accepted supplies and services, routine vouchers under a cost-reimbursement type contract, or progress payment invoices; or
- (2) Final adjustment under an incentive provision of the contract.

252.244-7000 SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (DOD) (MAR 2000)

In addition to the clauses listed in paragraph (c) of the Subcontracts for Commercial Items and Commercial Components clause of this contract (Federal Acquisition Regulation 52.244-6), the Contractor shall include the terms of the following clauses, if applicable, in subcontracts for commercial items or commercial components, awarded at any tier under this contract:

252.225-7014 Preference for Domestic Specialty Metals, Alternate I (10 U.S.C. 2241 note).

252.247-7023 Transportation of Supplies by Sea (10 U.S.C. 2631).

252.247-7024 Notification of Transportation of Supplies by Sea (10 U.S.C. 2631).

(End of clause)

252.247-7023 TRANSPORTATION OF SUPPLIES BY SEA (MAY 2002)

(a) Definitions. As used in this clause --

- (1) "Components" means articles, materials, and supplies incorporated directly into end products at any level of manufacture, fabrication, or assembly by the Contractor or any subcontractor.
- (2) "Department of Defense" (DoD) means the Army, Navy, Air Force, Marine Corps, and defense agencies.
- (3) "Foreign flag vessel" means any vessel that is not a U.S.-flag vessel.
- (4) "Ocean transportation" means any transportation aboard a ship, vessel, boat, barge, or ferry through international waters.
- (5) "Subcontractor" means a supplier, materialman, distributor, or vendor at any level below the prime contractor whose contractual obligation to perform results from, or is conditioned upon, award of the prime contract and who is performing any part of the work or other requirement of the prime contract.
- (6) "Supplies" means all property, except land and interests in land, that is clearly identifiable for eventual use by or owned by the DoD at the time of transportation by sea.
 - (i) An item is clearly identifiable for eventual use by the DoD if, for example, the contract documentation contains a reference to a DoD contract number or a military destination.
 - (ii) "Supplies" includes (but is not limited to) public works; buildings and facilities; ships; floating equipment and vessels of every character, type, and description, with parts, subassemblies, accessories, and equipment; machine tools; material; equipment; stores of all kinds; end items; construction materials; and components of the foregoing.

(7) "U.S.-flag vessel" means a vessel of the United States or belonging to the United States, including any vessel registered or having national status under the laws of the United States.

(b)(1) The Contractor shall use U.S.-flag vessels when transporting any supplies by sea under this contract.

(2) A subcontractor transporting supplies by sea under this contract shall use U.S.-flag vessels if--

(i) This contract is a construction contract; or

(ii) The supplies being transported are--

(A) Noncommercial items; or

(B) Commercial items that--

(1) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it contracts for f.o.b. destination shipment);

(2) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(3) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(c) The Contractor and its subcontractors may request that the Contracting Officer authorize shipment in foreign-flag vessels, or designate available U.S.-flag vessels, if the Contractor or a subcontractor believes that --

(1) U.S.-flag vessels are not available for timely shipment;

(2) The freight charges are inordinately excessive or unreasonable; or

(3) Freight charges are higher than charges to private persons for transportation of like goods.

(d) The Contractor must submit any request for use of other than U.S.-flag vessels in writing to the Contracting Officer at least 45 days prior to the sailing date necessary to meet its delivery schedules. The Contracting Officer will process requests submitted after such date(s) as expeditiously as possible, but the Contracting Officer's failure to grant approvals to meet the shipper's sailing date will not of itself constitute a compensable delay under this or any other clause of this contract. Requests shall contain at a minimum --

(1) Type, weight, and cube of cargo;

(2) Required shipping date;

(3) Special handling and discharge requirements;

(4) Loading and discharge points;

(5) Name of shipper and consignee;

(6) Prime contract number; and

(7) A documented description of efforts made to secure U.S.-flag vessels, including points of contact (with names

and telephone numbers) with at least two U.S.-flag carriers contacted. Copies of telephone notes, telegraphic and facsimile message or letters will be sufficient for this purpose.

(e) The Contractor shall, within 30 days after each shipment covered by this clause, provide the Contracting Officer and the Maritime Administration, Office of Cargo Preference, U.S. Department of Transportation, 400 Seventh Street SW., Washington, DC 20590, one copy of the rated on board vessel operating carrier's ocean bill of lading, which shall contain the following information:

- (1) Prime contract number;
- (2) Name of vessel;
- (3) Vessel flag of registry;
- (4) Date of loading;
- (5) Port of loading;
- (6) Port of final discharge;
- (7) Description of commodity;
- (8) Gross weight in pounds and cubic feet if available;
- (9) Total ocean freight in U.S. dollars; and
- (10) Name of the steamship company.

(f) The Contractor shall provide with its final invoice under this contract a representation that to the best of its knowledge and belief--

- (1) No ocean transportation was used in the performance of this contract;
- (2) Ocean transportation was used and only U.S.-flag vessels were used for all ocean shipments under the contract;
- (3) Ocean transportation was used, and the Contractor had the written consent of the Contracting Officer for all non-U.S.-flag ocean transportation; or
- (4) Ocean transportation was used and some or all of the shipments were made on non-U.S.-flag vessels without the written consent of the Contracting Officer. The Contractor shall describe these shipments in the following format:

ITEM DESCRIPTION	CONTRACT LINE ITEMS	QUANTITY
_____	_____	_____
_____	_____	_____
_____	_____	_____
TOTAL	_____	_____

(g) If the final invoice does not include the required representation, the Government will reject and return it to the Contractor as an improper invoice for the purposes of the Prompt Payment clause of this contract. In the event there has been unauthorized use of non-U.S.-flag vessels in the performance of this contract, the Contracting Officer is entitled to equitably adjust the contract, based on the unauthorized use.

(h) In the award of subcontracts for the types of supplies described in paragraph (b)(2) of this clause, the Contractor shall flow down the requirements of this clause as follows:

(1) The Contractor shall insert the substance of this clause, including this paragraph (h), in subcontracts that exceed the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation.

(2) The Contractor shall insert the substance of paragraphs (a) through (e) of this clause, and this paragraph (h), in subcontracts that are at or below the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation.

(End of clause)

252.247-7024 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)

(a) The Contractor has indicated by the response to the solicitation provision, Representation of Extent of Transportation by Sea, that it did not anticipate transporting by sea any supplies. If, however, after the award of this contract, the Contractor learns that supplies, as defined in the Transportation of Supplies by Sea clause of this contract, will be transported by sea, the Contractor --

(1) Shall notify the Contracting Officer of that fact; and

(2) Hereby agrees to comply with all the terms and conditions of the Transportation of Supplies by Sea clause of this contract.

(b) The Contractor shall include this clause; including this paragraph (b), revised as necessary to reflect the relationship of the contracting parties--

(1) In all subcontracts under this contract, if this contract is a construction contract; or

(2) If this contract is not a construction contract, in all subcontracts under this contract that are for--

(i) Noncommercial items; or

(ii) Commercial items that--

(A) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it subcontracts for f.o.b. destination shipment);

(B) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(C) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(End of clause)

All Contractor employees (U.S. citizens and Non-U.S. citizens) working under this contract (*to include grants, cooperative agreements and task orders*) who require access to Automated Information Systems (AIS), (stand alone computers, network computers/systems, e-mail) shall, at a minimum, be designated into an ADP-III position (non-sensitive) in accordance with DoD 5220-22-R, Industrial Security Regulation. The investigative requirements for an ADP-III position are a favorable National Agency Check (NAC), SF-85P, Public Trust Position. The contractor shall have each applicable employee complete a SF-85P and submit to the Seattle District, U.S. Army, Corps of Engineers, PO Box 3755, Seattle, WA 98124-3755, Security Officer within three (3) working days after award of any contract or task order, and shall be submitted prior to the individual being permitted access to an AIS. Contractors that have a commercial or government entity (CAGE) Code and Facility Security Clearance through the Defense Security Service shall process the NACs and forward visit requests/results of NAC to the Seattle District, U.S. Army, Corps of Engineers, PO Box 3755, Seattle, WA 98124-3755, Security Officer. For those contractors that do not have a CAGE Code or Facility Security Clearance, the Seattle District, U.S. Army, Corps of Engineers, PO Box 3755, Seattle, WA 98124-3755, Security Office will process the investigation in coordination with the Contractor and contract employees.

In accordance with Engineering Regulation, ER 380-1-18, Section 4, foreign nationals who work on Corps of Engineers' contracts or task orders shall be approved by the HQUSACE Foreign Disclosure Officer or higher before beginning work on the contract/task order. This regulation includes subcontractor employees. (NOTE: exceptions to the above requirement include foreign nationals who perform janitorial and/or ground maintenance services.) The contractor shall submit to the Division/District Contract Office, the names of all foreign nationals proposed for performance under this contract/task order, along with documentation to verify that he/she was legally admitted into the United States and has authority to work and/or go to school in the US. Such documentation may include a US passport, Certificate of US citizenship (INS Form N-560 or N-561), Certificate of Naturalization (INS Form N-550 or N-570), foreign passport with I-551 stamp or attached INS Form I-94 indicating employment authorization, Alien Registration Receipt Card with photograph (INS Form I-151 or I-551), Temporary Resident Card (INS Form I-688), Employment Authorization Card (INS Form I-688A), Reentry Permit (INS Form I-327), Refugee Travel Document (INS Form I-571), Employment Authorization Document issued by the INS which contains a photograph (INS Form I-688B).

Classified contracts require the issuance of a DD Form 254 (Department of Defense Contract Security Classification Specification).

(End of Clause)

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SPECIAL CLAUSES

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SC-1.2	EXCEPTION TO COMPLETION PERIOD
SC-2	LIQUIDATED DAMAGES - CONSTRUCTION
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SC-14	EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE
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SC-22.	EPA ENERGY STAR
SC-23	RECOVERED MATERIALS

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SPECIAL CLAUSES

SC-1. COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984) (FAR 52.211-10).

The Contractor shall be required to (a) commence work under this Contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 720 calendar days after date of receipt by Contractor of notice to proceed. The time stated for completion shall include final cleanup of the premises.

SC-1.1 OPTION FOR INCREASED QUANTITY

a. The Government may increase the quantity of work awarded by exercising Optional Bid Item 0010 at any time, or not at all, but no later than 90 calendar days after receipt by Contractor of notice to proceed. Notice to proceed on work Item(s) added by exercise of the option(s) will be given upon execution of consent of surety.

b. The parties hereto further agree that any option herein shall be considered to have been exercised at the time the Government deposits written notification to the Contractor in the mails.

c. The time allowed for completion of any optional items awarded under this contract will be the same as that for the base item(s), and will be measured from the date of receipt of the notice to proceed for the base item(s).

SC-1.2 Exception to Completion Period(s): In case the Contracting Officer determines that completion of seeding, sodding, and planting, and establishment of same is not feasible within the completion period(s) stated above, the Contractor shall accomplish such work in the first planting period following the contract completion period and shall complete such work as specified, unless other planting periods are directed or approved by the Contracting Officer.

SC-2. LIQUIDATED DAMAGES - CONSTRUCTION (APR 1984) (FAR 52.211-12)

(a) If the Contractor fails to complete the work within the time specified in the Contract, or any extension, the Contractor shall pay to the Government as liquidated damages, the sum of \$2,830.00 for each day of delay.

(b) If the Government terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the Government in completing the work.

(c) If the Government does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

(d) Exception to Liquidated Damage: In case the Contracting Officer determines that completion of work stated above in paragraph Exception to Completion Period(s) is not feasible during the completion period(s) stated in SC-1, such work will be exempted from liquidated damages.

SC-3 AND SC-4 DELETED.

SC-5. INSURANCE - WORK ON A GOVERNMENT INSTALLATION (SEP 1989) (FAR 52.228-5)

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance period of this Contract at least the kinds and minimum amounts of insurance required in the Insurance Liability Schedule or elsewhere in the Contract.

(b) Before commencing work under this Contract, the Contractor shall certify to the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective:

(1) for such period as the laws of the State in which this Contract is to be performed prescribe; or

(2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this Contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the Contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

(d) Insurance Liability Schedule (FAR 28.307-2)

(1) Workers' compensation and employer's liability. Contractors are required to comply with applicable Federal and State workers' compensation and occupational disease statutes. If occupational diseases are not compensable under those statutes, they shall be covered under the employer's liability section of the insurance policy, except when Contract operations are so commingled with a Contractor's commercial operation that it would not be practical to require this coverage. Employer's liability coverage of at least \$100,000 shall be required, except in states with exclusive or monopolistic funds that do not permit workers' compensation to be written by private carriers.

(2) General Liability.

(a) The Contracting Officer shall require bodily injury liability insurance coverage written on the comprehensive form of policy of at least \$500,000 per occurrence.

(b) Property damage liability insurance shall be required only in special circumstances as determined by the agency.

(3) Automobile liability. The Contracting Officer shall require automobile liability insurance written on the comprehensive form of policy. The policy shall provide for bodily injury and property damage liability covering the operation of all automobiles used in connection with performing the Contract. Policies covering automobiles operated in the United States shall provide coverage of at least \$200,000 per person and \$500,000 per occurrence for bodily injury and \$20,000 per occurrence for property damage. The amount of liability coverage on other

policies shall be commensurate with any legal requirements of the locality and sufficient to meet normal and customary claims.

(4) Aircraft public and passenger liability. When aircraft are used in connection with performing the Contract, the Contracting Officer shall require aircraft public and passenger liability insurance. Coverage shall be at least \$200,000 per person and \$500,000 per occurrence for bodily injury, other than passenger liability, and \$200,000 per occurrence for property damage. Coverage for passenger liability bodily injury shall be at least \$200,000 multiplied by the number of seats or passengers, whichever is greater.

(5) Environmental Liability. If this contract includes the transport, treatment, storage, or disposal of hazardous material waste the following coverage is required.

The Contractor shall ensure the transporter and disposal facility have liability insurance in effect for claims arising out of the death or bodily injury and property damage from hazardous material/waste transport, treatment, storage and disposal, including vehicle liability and legal defense costs in the amount of \$1,000,000.00 as evidenced by a certificate of insurance for General, Automobile, and Environmental Liability Coverage. Proof of this insurance shall be provided to the Contracting Officer.

SC-6 DELETED.

SC-7. PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984) (FAR 52.236-1): The Contractor shall perform on the site, and with its own organization, work equivalent to at least fifteen percent (15%) of the total amount of work to be performed under the Contract. The percentage may be reduced by a supplemental agreement to this Contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

SC-8. PHYSICAL DATA (APR 1984) (FAR 52.236-4): Data and information furnished or referred to below is for the Contractor's information. The Government will not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) Physical Conditions: The indications of physical conditions on the drawings and in the specifications are the result of site investigations by test holes shown on the drawings.

(b) Weather Conditions: Each bidder shall be satisfied before submitting his bid as to the hazards likely to arise from weather conditions. Complete weather records and reports may be obtained from any National Weather Service Office.

(c) Transportation Facilities: Each bidder, before submitting his bid, shall make an investigation of the conditions of existing public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress at the jobsite. The unavailability of transportation facilities or limitations thereon shall not become a basis for claims for damages or extension of time for completion of the work.

SC-9 DELETED.

SC-10. LAYOUT OF WORK (APR 1984) (FAR 52.236-17): The Contractor shall lay out its work from Government-established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall

furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due, or to become due, to the Contractor.

SC-11 THROUGH SC-12 DELETED.

SC-13. IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY (APR 1984) (FAR 52.245-3): The Government will furnish to the Contractor the property identified in the schedule to be incorporated or installed into the work or used in performing the contract. The listed property will be furnished to the Contractor at the place designated by the Contracting Officer. The Contractor is required to accept delivery, pay any demurrage or detention charges, and unload and transport the property to the jobsite at its own expense. When the property is delivered, the Contractor shall verify its quantity and condition and acknowledge receipt in writing to the Contracting Officer. The Contractor shall also report in writing to the Contracting Officer within 24 hours of delivery any damage to or shortage of the property as received. All such property shall be installed or incorporated into the work at the expense of the Contractor, unless otherwise indicated in this contract.

For purposes of calculating the amount of Washington State Use Tax to be included in his bid; the Contractor shall use an estimated value of \$108,750.00 for Government-furnished Contractor-installed (GF/CI) equipment/property. Ultimately the actual cost of equipment furnished will be used to adjust the final contract amount by modification to reflect the user tax excluding Contractor markups, actually paid by the Contractor for GF/CI equipment schedule.

SCHEDULE

<u>QUANTITY</u>	<u>ITEM</u>	<u>DESCRIPTION</u>	<u>EST. VALUE</u> <u>(TOTAL)</u>
150	Washing Machines		\$60, 000
150	Clothes Dryers		\$48,750

SC-14. EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (MAR 1995)-(EFARS 52.231-5000)

(a) This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for

which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule, Region VIII. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

(e) Copies of EP1110-1-8 "Construction Equipment Ownership and Operating Expense Schedule" Volumes 1 through 12 are available in Portable Document Format (PDF) and can be viewed or downloaded at <http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/cecw.htm>. A CD-ROM containing (Volumes 1-12) is available through either the Superintendent of Documents or Government bookstores. For additional information telephone 202-512-2250, or access on the Internet at http://www.access.gpo.gov/su_docs.

SC-15. PAYMENT FOR MATERIALS DELIVERED OFF-SITE (MAR 1995)-(EFARS 52.232-5000)

(a) Pursuant to FAR clause 52.232-5, Payments Under Fixed Priced Construction Contracts, materials delivered to the contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to: (1) materials required by the technical provisions; or (2) materials that have been fabricated to the point where they are identifiable to an item of work required under this contract.

(b) Such payment will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item. In addition to petroleum products, payment for materials delivered off-site is limited to the following items: Any other construction material stored offsite may be considered in determining the amount of a progress payment.

SC-16 AND SC-17 DELETED.

SC-18. CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (OCT 1996) (52.0236-4001 EBS)

(a) The Government--

(1) Will provide the Contractor, without charge, one set of contract drawings and one set of specifications in electronic format on a compact disk. The Government will not give the Contractor any hard copy paper drawings or specifications for any contract resulting from this solicitation.

(b) The Contractor shall--

(1) check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies; and

(4) Be responsible for any errors which might have been avoided by complying with this paragraph (b).

(c) Large scale drawings shall, in general, govern small scale drawings. Figures marked on drawings shall, in general, be followed in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work, but shall be performed as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified in the index of drawings attached at the end of the Special Clauses.

SC-19 THROUGH SC-21 DELETED.

SC-22. EPA ENERGY STAR: The Government requires that certain equipment be Energy Star compliant. Initially, the sole Energy Star requirement shall be the self certification by the bidder that the specified equipment is Energy Star compliant. Within 3 months of the availability of an EPA sanctioned test for Energy Star compliance, the Contractor shall submit all equipment upgrades and additions for testing and provide proof of compliance to the Government upon completion of testing. Testing shall be at the Contractor's expense.

SC-23. RECOVERED MATERIALS: The Corps of Engineers encourages all bidders to utilize recovered materials to the maximum extent practicable. The attached APPENDIX R contains procurement guidelines for products containing recovered materials.

APPENDIX R

PART 247 - COMPREHENSIVE PROCUREMENT GUIDELINE FOR PRODUCTS CONTAINING RECOVERED MATERIALS

40 CFR Ch. 1 (9-1-99 Edition)

Subpart B-Item Designations

§ 247.10 Paper and paper products.

Paper and paper products, excluding building and construction paper grades.

§ 247.11 Vehicular products.

- (a) Lubricating oils containing re-refined oil, including engine lubricating oils, hydraulic fluids, and gear oils, excluding marine and aviation oils.
- (b) Tires, excluding airplane tire
- (e) Reclaimed engine coolants, excluding coolants used in non-vehicular applications.

247.12 Construction products.

- (a) Building insulation product including the following items:
 - (1) Loose-fill insulation, including but not limited to cellulose fiber, mineral fibers (fiberglass and rock vermiculite, and perlite;
 - (2) Blanket and batt insulation, including but not limited to mineral fibers (fiberglass and rock wool).
 - (3) Board (sheathing, roof decking wall panel) insulation, including but not limited to structural fiberboard and laminated paperboard products perlite composite board, polyurethane, polyisocyanurate, polystyrene, phenolics, and composites; and
 - (4) Spray-in-place insulation, including but not limited to foam-in-place polyurethane and polyisocyanurate and spray-on cellulose.
- (b) Structural fiberboard and laminated paperboard products for applications other than building insulation, including building board, sheathing shingle backer, sound deadening board, roof insulating board, insulating wallboard, acoustical and non-acoustical ceiling tile, acoustical and non-acoustical lay-in panels, floor underlayments, and roof overlay (cover board).
- (c) Cement and concrete, including concrete products such as pipe and block, containing coal fly as ground granulated blast furnace (GGBF) slag.
- (d) Carpet made of polyester fiber use in low- and medium-wear applications.
- (e) Floor tiles and patio block containing recovered rubber or plastic.
- (f) Shower and restroom dividers/partitions containing recovered plastic or steel.
- (g) (1) Consolidated latex paint used for covering graffiti; and
- (2) Reprocessed latex paint used for interior and exterior architectural applications such as wallboard, ceilings, and trim; gutter boards; and concrete, stucco, masonry, wood and metal surfaces.

§247.13 Transportation products.

- (a) Traffic barricades and traffic cones used in controlling or restricting vehicular traffic.
- (b) Parking stops made from concrete or containing recovered plastic or rubber.

- (c) Channelizers containing recovered plastic or rubber.
- (d) Delineators containing recovered plastic, rubber, or steel.
- (e) Flexible delineators containing recovered plastic.

§ 247.14 Park and recreation products

- (a) Playground surfaces and running tracks containing recovered rubber or plastic.
- (b) Plastic fencing containing recovered plastic for use in controlling snow or sand drifting and as a warning/safety barrier in construction or other applications.

247.15 Landscaping products.

- (a) Hydraulic mulch products containing recovered paper or recovered wood used for hydroseeding and as an over-spray for straw mulch in landscaping, erosion control, and soil reclamation.
- (b) Compost made from yard trimmings, leaves, and/or grass clippings for use in landscaping, seeding of grass or other plants on roadsides and embankments, as a nutritious mulch under trees and shrubs, and in erosion control and soil reclamation.
- (c) Garden and soaker hoses containing recovered plastic or rubber.
- (d) Lawn and garden edging containing recovered plastic or rubber.

§ 247.16 Non-paper office product.

- (a) Office recycling containers and office waste receptacles.
- (b) Plastic desktop accessories.
- (c) Toner cartridges.
- (d) Binders.
- (e) Plastic trash bags.
- (f) Printer ribbons.
- (g) Plastic envelopes.

§ 247.17 Miscellaneous products.

Pallets containing recovered wood, plastic, or paperboard.

INDEX OF DRAWINGS

FY 04 Whole Barracks Renewal, North Fort Lewis, WA
PN 44794
22s/721-12-16

See Section 00860, Attachment 11, List of RFP Drawings.

STANDARD DETAILS BOUND IN THE SPECIFICATIONS

DRAWING NUMBER	SHEET NUMBER	TITLE	DATE
<u>SECTION 01501 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS</u>			
	1 & 2	U.S. Army Project Construction Sign	84JUN20
	1	Hard Hat Sign	10SEP90

END OF SECTION

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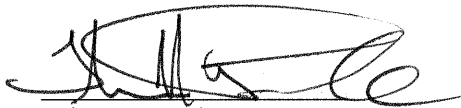
DESIGN AUTHENTICATION

FY 04 WHOLE BARRACKS RENEWAL, FORT LEWIS, WASHINGTON

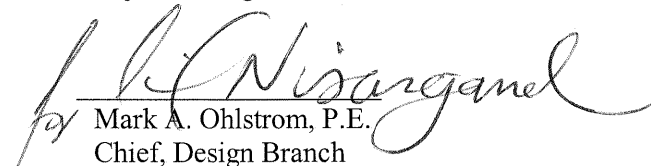
Signatures affixed below indicate the drawings and specifications included in this solicitation were prepared, reviewed and certified in accordance with Department of Army Engineer Regulation ER 1110-345-100, DESIGN POLICY FOR MILITARY CONSTRUCTION.



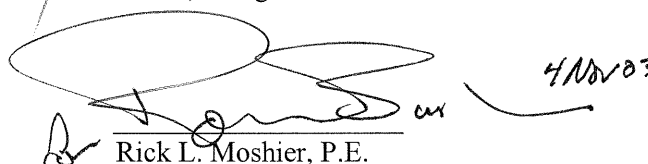
Dean M. Schmidt
Chief, Tech. Eng. & Review Section,
Construction Branch



Thomas Poole
Project Manager



Mark A. Ohlstrom, P.E.
Chief, Design Branch

 4/18/03

Rick L. Moshier, P.E.
Chief, Engineering & Construction Division

This project was designed by the U.S. Army Corps of Engineers, Seattle District. The initials and/or signatures and registration designations of individuals appearing on these project documents are within the scope of their employment as required by ER 1110-1-8152, ENGINEERING AND DESIGN PROFESSIONAL REGISTRATION.

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DAVIS-BACON GENERAL WAGE DECISIONS:

- 1. WA030001 (Heavy and Highway and Dredging)** – All work more than 5 feet (1.5 meters) from the perimeter of a building shall be performed under this wage decision.
- 2. WA030002 (Building)** – All work inside and within 5 feet (1.5 meters) of a building other than the three-hundred person barracks building shall be performed under this wage decision.
- 3. WA030014 (Residential)** – All work inside and within 5 feet (1.5 meters) of the three-hundred person barracks shall be performed under this wage decision.

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WAIS Document Retrieval
GENERAL DECISION WA030001 06/13/2003 WA1

Date: June 13, 2003
General Decision Number WA030001

Superseded General Decision No. WA020001

State: Washington

Construction Type:
DREDGING
HEAVY
HIGHWAY

County(ies):
STATEWIDE

HEAVY AND HIGHWAY AND DREDGING CONSTRUCTION PROJECTS
(Excludes D. O. E. Hanford Site in Benton and Franklin Counties)

Modification Number	Publication Date
0	06/13/2003

COUNTY(ies):
STATEWIDE

CARP0001W 06/01/2002

	Rates	Fringes
COLUMBIA RIVER AREA - ADAMS, BENTON, COLUMBIA, DOUGLAS (EAST OF THE 120TH MERIDIAN), FERRY, FRANKLIN, GRANT, OKANOGAN (EAST OF THE 120TH MERIDIAN) AND WALLA WALLA COUNTIES		

CARPENTERS:

GROUP 1:	23.58	6.25
GROUP 2:	24.69	6.25
GROUP 3:	23.85	6.25
GROUP 4:	23.58	6.25
GROUP 5:	58.43	6.25
GROUP 6:	27.72	6.25

SPOKANE AREA: ASOTIN, GARFIELD, LINCOLN, PEND OREILLE, SPOKANE, STEVENS AND WHITMAN COUNTIES

CARPENTERS:

GROUP 1:	22.91	6.25
GROUP 2:	24.01	6.25
GROUP 3:	23.17	6.25
GROUP 4:	22.91	6.25
GROUP 5:	56.77	6.25

GROUP 6:

27.00

6.25

CARPENTERS CLASSIFICATIONS

GROUP 1: Carpenter; Burner-Welder; Rigger and Signaler; Insulators (all types), Acoustical, Drywall and Metal Studs, Metal Panels and Partitions; Floor Layer, Sander, Finisher and Astro Turf; Layout Carpenters; Form Builder; Rough Framers; Outside or Inside Finisher, including doors, windows, and jams; Sawfiler; Shingler (wood, composition) Solar, Fiberglass, Aluminum or Metal; Scaffold Erecting and Dismantling; Stationary Saw-Off Bearer; Wire, Wood and Metal Lather Applicator

GROUP 2: Millwright, machine erector

GROUP 3: Piledriver - includes driving, pulling, cutting, placing collars, setting, welding, or creosote treated material, on all piling

GROUP 4: Bridge, dock and wharf carpenters

GROUP 5: Divers

GROUP 6: Divers Tender

DEPTH PAYY FOR DIVERS:

Each foot over 50-100 feet \$1.00

Each foot over 100-175 feet 2.25

Each foot over 175-250 feet 5.50

HAZMAT PROJECTS

Anyone working on a HAZMAT job (task), where HAZMAT certification is required, shall be compensated at a premium, in addition to the classification working in as follows:

LEVEL D + \$.25 per hour - This is the lowest level of protection. No respirator is used and skin protection is minimal.

LEVEL C + \$.50 per hour - This level uses an air purifying respirator or additional protective clothing.

LEVEL B + \$.75 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit".

LEVEL A +\$1.00 per hour - This level utilizes a fully encapsulated suit with a self-contained breathing apparatus or a supplied air line.

CARP00030 06/01/2002

Rates

Fringes

SOUTHWEST WASHINGTON: CLARK, COWLITZ, KLICKITAT, LEWIS(Piledriver only), PACIFIC (South of a straight line made by extending the north boundary line of Wahkiakum County west to Willapa Bay to the Pacific Ocean), SKAMANIA AND WAHKIAKUM COUNTIES and INCLUDES THE ENTIRE PENINSULA WEST OF WILLAPA BAY

SEE ZONE DESCRIPTION FOR CITIES BASE POINTS

ZONE 1:

CARPENTERS; ACOUSTICAL	27.37	8.80
DRYWALL	27.37	8.80
FLOOR LAYERS & FLOOR FINISHERS (the laying of all hardwood floors nailed and mastic set, parquet and wood-type tiles, and block floors, the sanding and finishing of floors, the preparation of old and new floors when the materials mentioned above are to be installed); INSULATORS (fiberglass and similar irritating materials	27.52	8.80
MILLWRIGHTS	27.87	8.80
PILEDIVERS	27.87	8.80
DIVERS	65.05	8.80
DIVERS TENDERS	29.91	8.80

DEPTH PAY

50 TO 100 FEET	\$1.00 PER FOOT OVER 50 FEET
100 TO 150 FEET	1.50 PER FOOT OVER 100 FEET
150 TO 200 FEET	2.00 PER FOOT OVER 150 FEET

Zone Differential (Add up Zone 1 rates):

Zone 2 - \$0.85
Zone 3 - 1.25

Zone 4 - 1.70
Zone 5 - 2.00
Zone 6 - 3.00

BASEPOINTS: ASTORIA, LONGVIEW, PORTLAND, THE DALLES,
AND VANCOUVER, (NOTE: All dispatches for Washington State
Counties: Cowlitz, Wahkiakum and Pacific shall be from Longview
Local #1707 and mileage shall be computed from that point.)

ZONE 1: Projects located within 30 miles of the respective
city hall of the above mentioned cities

ZONE 2: Projects located more than 30 miles and less than 40
miles of the respective city of the above mentioned
cities

ZONE 3: Projects located more than 40 miles and less than 50
miles of the respective city of the above mentioned
cities

ZONE 4: Projects located more than 50 miles and less than 60
miles of the respective city of the above mentioned
cities.

ZONE 5: Projects located more than 60 miles and less than 70
miles of the respective city of the above mentioned

cities
 ZONE 6: Projects located more than 70 miles of the respected
 city of the above mentioned cities

CARP0770D 06/01/2002

Rates Fringes

WESTERN WASHINGTON: CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON,
 KING, KITSAP, LEWIS (excludes piledrivers only), MASON,
 PACIFIC (North of a straight line made by extending the north
 boundary line of Wahkiakum County west to the Pacific Ocean),
 PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON AND WHATCOM
 COUNTIES

CARPENTERS AND DRYWALL APPLICATORS	27.95	8.05
CARPENTERS ON CREOSOTE MATERIAL	28.05	8.05
INSULATION APPLICATORS	25.50	8.05
SAWFILERS, STATIONARY POWER SAW OPERATORS, FLOOR FINISHER, FLOOR LAYER, SHINGLER, FLOOR SANDER OPERATOR AND OPERATORS OF OTHER STATIONARY WOOD WORKING TOOLS	28.08	8.05
MILLWRIGHT AND MACHINE ERECTORS	28.95	8.05
ACOUSTICAL WORKERS	28.11	8.05
PILEDRIIVER, DRIVING, PULLING, CUTTING, PLACING COLLARS, SETTING, WELDING OR CREOSOTE TREATED MATERIAL, ALL PILING	28.15	8.05
PILEDRIIVER, BRIDGE, DOCK & WHARF CARPENTERS	27.95	8.05
DIVERS	68.97	8.05
DIVERS TENDER	30.68	8.05

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - ALL

CLASSIFICATIONS EXCEPT MILLWRIGHTS AND PILEDRIIVERS

Hourly Zone Pay shall be paid on jobs located outside
 of the free zone computed from the city center of the
 following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay	
0 - 25 radius miles	Free
25-35 radius miles	\$1.00/hour

35-45 radius miles	\$1. 15/hour
45-55 radius miles	\$1. 35/hour
Over 55 radius miles	\$1. 55/hour

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - MILLWRIGHT AND PILEDRIVER ONLY)

Hourly Zone Pay shall be computed from Seattle Union Hall, Tacoma City center, and Everett City center

Zone Pay	
0 - 25 radius miles	Free
25-45 radius miles	\$. 70/hour
Over 45 radius miles	\$1. 50/hour

CENTRAL WASHINGTON: CHELAN, DOUGLAS (WEST OF THE 120TH MERIDIAN), KITTITAS, OKANOGAN (WEST OF THE 120TH MERIDIAN) AND YAKIMA COUNTIES

CARPENTERS AND DRYWALL APPLICATORS	20. 72	7. 82
CARPENTERS ON CREOSOTED MATERIAL	20. 82	7. 82
INSULATION APPLICATORS	20. 72	7. 82
SAWFILERS, STATIONARY POWER S37		
OPERATORS, FLOOR FINISHER,		
FLOOR LAYER, SHINGLERS, FLOOR		
SANDER OPERATORS	20. 85	7. 82
MILLWRIGHT AND MACHINE ERECTORS	28. 95	7. 82
PILEDRIVER, DRIVING, PULLING,		
CUTTING, PLACING COLLARS,		
SETTING, WELDING OR CRESOTE		
TREATED MATERIAL, ALL PILING	28. 15	7. 82
PILEDRIVER, BRIDGE DOCK AND		
WHARF CARPENTERS	27. 95	7. 82
DIVERS	68. 97	8. 05
DIVERS TENDER	30. 68	8. 05

ELEC0046A 12/30/2002

	Rates	Fringes
CALLAM, JEFFERSON, KING AND KITSAP COUNTIES		
ELECTRICIANS	34. 25	3%+9. 55
CABLE SPLICERS	37. 68	3%+9. 55

ELEC0048C 01/01/2003

	Rates	Fringes
CLARK, KLICKITAT AND SKAMANIA COUNTIES		
ELECTRICIANS	31. 00	3%+11. 83
CABLE SPLICERS	31. 25	3%+11. 83

ELEC0073A 01/01/2003

**ADAMS, FERRY, LINCOLN, PEND OREILLE, SPOKANE, STEVENS, WHITMAN
COUNTIES**

	Rates	Fringes
ELECTRICIANS	24.07	3%+10.63
CABLE SPLICERS	24.47	3%+10.63

ELEC0076B 07/01/2002

**GRAYS HARBOR, LEWIS, MASON, PACIFIC, PIERCE, AND THURSTON
COUNTIES**

	Rates	Fringes
ELECTRICIANS	29.78	3%+11.01
CABLE SPLICERS	32.76	3%+11.01

ELEC0077C 02/01/2003

	Rates	Fringes
LINE CONSTRUCTION:		
CABLE SPLICERS	37.95	3.875%+7.45
LINEMEN, POLE SPRAYERS, HEAVY LINE EQUIPMENT MAN	33.88	3.875%+7.45
LINE EQUIPMENT MEN	29.14	3.875%+5.70
POWDERMEN, JACKHAMMERMEN	25.41	3.875%+5.70
GROUND MEN	23.72	3.875%+5.70
TREE TRIMMER	23.81	3.875%+5.70

ELEC0112E 06/01/2002

**ASOTIN, BENTON, COLUMBIA, FRANKLIN, GARFIELD, KITTITAS,
WALLA WALLA, YAKIMA COUNTIES**

	Rates	Fringes
ELECTRICIANS	28.75	3%+9.63
CABLE SPLICERS	30.19	3%+9.63

ELEC0191C 08/31/2002

ISLAND, SAN JUAN, SNOHOMISH, SKAGIT AND WHATCOM COUNTIES

	Rates	Fringes
ELECTRICIANS	30.66	3%+9.33
CABLE SPLICERS	33.72	3%+9.33

ELEC0191D 12/01/2002

CHELAN, DOUGLAS, GRANT AND OKANOGAN COUNTIES

ELECTRICIANS	26.66	3%+9.28
CABLE SPLICERS	29.33	3%+9.28

ELEC0970A 01/01/2003

	Rates	Fringes
COWLITZ AND WAHIAKUM COUNTIES		
ELECTRICIANS	28.55	3%+9.25
CABLE SPLICERS	31.41	3%+9.25

ENGI0302E 06/01/2002

	Rates	Fringes
CHELAN (WEST OF THE 120TH MERIDIAN), CLALLAM, DOUGLAS (WEST OF THE 120TH MERIDIAN), GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, KITTITAS, MASON, OKANOGAN (WEST OF THE 120TH MERIDIAN), SAN JUAN, SKAGIT, SNOHOMISH, WHATCOM AND YAKIMA (WEST OF THE 120TH MERIDIAN) COUNTIES		

PROJECTS

CATEGORY A PROJECTS (excludes Category B projects, as show below)

POWER EQUIPMENT OPERATORS:

Zone 1 (0-25 radius miles):

GROUP 1AAA	31.14	8.40
GROUP 1AA	30.64	8.40
GROUP 1A	30.14	8.40
GROUP 1	29.64	8.40
GROUP 2	29.20	8.40
GROUP 3	28.84	8.40
GROUP 4	26.74	8.40

Zone 2 (26-45 radius miles) - Add \$.70 to Zone 1 rates

Zone 3 (Over 45 radius miles) - Add \$1.00 to Zone 1 rates

BASEPOINTS: Bellingham, Mount Vernon, Kent, Port Angeles, Port Townsend, Aberdeen, Shelton, Bremerton, Wenatchee, Yakima, Seattle, Everett

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-over 300 tons or 300 ft. of boom (including job with attachments)

GROUP 1AA - Cranes - 200 tons to 300 tons or 250 ft. of boom (including jib and attachments); Tower crane over 175 ft. in height, base to boom

GROUP 1A - Cranes - 100 tons thru 199 tons or 150' of boom (including jib with attachments); Crane-overhead, bridge type,

100 tons and over; Tower crane up to 175 ft. in height base to boom; Loader-overhead, 8 yards and over; Shovel, excavator, backhoes-6 yards and over with attachments

GROUP 1 - Cableway; Cranes-45 tons thru 99 tons, under 150 ft. of boom (including jib with attachments); Crane-overhead, bridge type, 45 tons thru 99 tons; Shovel, excavator, backhoes over 3 yards and under 6 yards; Hard tail end dump articulating off-road equipment 45 yards and over; Loader-overhead, 6 yards to, but not including 8 yards; Mucking machine, mole, tunnel, drill and/or shield; Quad 9, HD 41, d-10; Remote control operator on rubber tired earth moving equipment; Rollagon; Scrapers-self-propelled-45 yards and over; Slipform pavers; Transporters, all track or truck type

GROUP 2 - Barrier machine (zipper); Barch Plant operator-concrete; Bump cutter; Cranes-20 tons thru 44 tons with attachments; Cranes-overheads, bridge type-20 tons through 44 tons; Chipper; Concrete pump-truck mount with boom attachment; Crusher; Deck Engine/Deck Winches (power); Drilling machine; Excavator, shovel backhoe-3 yards and under; Finishing machine Bidwell, Gamaco and similar equipment; Guardrail punch; Horizontal/directional drill operator; Loaders, overhead under 6 yds.; Loaders-plant feed; Locomotives-all; Mechanics-all; Mixers-asphalt plant; Motor patrol graders-finishing; Pildriver (other than crane mount); Roto-mill, roto-grinder; Screedman, Spreader, Topside Operator-Blaw Knox, Cedar Rapids, Jaeger, Caterpillar, Barbar Green; Scraper-self-propelled, hard tail end dump, articulating off-road equipment-under 45 yards; Subgrader trimmer; Tractors, backhoes-over 75 hp; Transfer material service machine-shuttle buggy, blow knox, roadtec; Truck crane oiler/driver-100 tons and over; Truck mount portable conveyor; Yo Yo Pay Dozer

GROUP 3 - Conveyors; Cranes-thru 19 tons with attachments; Cranes-A-frame over 10 tons; Drill oilers-auger type, truck or crane mount; Dozers D9 and under; Forklifts-3000 lbs and over with attachments; horizontal/directional drill locator; Outside hoists-(elevators and manlifts), air tuggers, strao tower bucket elevators; Hydralifts/boom truck-over 10 tons; Loader-elevating type belt; Motor Patrol Grader-non-finishing; Plant Oiler-asphalt, crusher; Pumps-concrete; Roller, plant mix or multi-lift materials; Saws-concrete; Scrapers-concrete and carryall; Service engineers-equipment; Trenching machines; Truck crane oiler/driver-under 100 tons Tractors, backhoes-under 75 hp

GROUP 4 - Assistant Engineer; Bobcat; Brooms; Compressor; Concrete Finish Machine-laser screed; Cranes-A-frame-10 tons and under; Elevator and manlift-permanent and shaft type; Forklifts-under 3000 lbs. with attachments; Gradechecker, stakehop; Hydralifts, boom trucks-10 tons and under; Oil distributors, blower distribution and mulch seeding

operator; Pavement breaker; Post Hole Digger-mechanical; Power

Plant; Pumps-water; Rigger and Bellman; Roller-other than plant
mix; Wheel Tractors, farmall type; Shot crete/gunite equipment
operator

CATEGORY B PROJECTS - 95% of the basic hourly rate for each
group plus full fringe benefits applicable to Category A projects
shall apply to the following projects. Reduced rates may be paid
on the following:

1. Projects involving work on structures such as buildings
and structures whose total value is less than \$1.5 million
excluding mechanical, electrical, and utility portions of the
contract.
2. Projects of less than \$1 million where no building is
involved. Surfacing and paving included, but utilities excluded.
3. Marine projects (docks, wharfs, etc.) less than \$150,000.

WORK PERFORMED ON HYDRAULIC DREDGES:

Total Project Cost \$300,000 and over

GROUP 1	28.38	8.40
GROUP 2	28.48	8.40
GROUP 3	28.82	8.40
GROUP 4	28.87	8.40
GROUP 5	30.26	8.40
GROUP 6	28.38	8.40

GROUP 1: Assistant Mate (Deckhand)

GROUP 2: Oiler

GROUP 3: Assistant Engineer (Electric, Diesel, Steam or
Booster Pump); Mates and Boatmen

GROUP 4: Craneman, Engineer Welder

GROUP 5: Leverman, Hydraulic

GROUP 6: Maintenance

Total Project cost under \$300,000

GROUP 1	26.96	8.40
GROUP 2	27.06	8.40
GROUP 3	27.38	8.40
GROUP 4	27.43	8.40
GROUP 5	28.75	8.40
GROUP 6	26.96	8.40

GROUP 1: Assistant Mate (Deckhand)

GROUP 2: Oiler

GROUP 3: Assistant Engineer (Electric, Diesel, Steam,
or Booster Pump); Mates and Boatmen

GROUP 4: Craneman, Engineer Welder

GROUP 5: Leverman, Hydraulic

GROUP 6: Maintenance

HEAVY WAGE RATES (CATEGORY A) APPLIES TO CLAM SHELL DREDGE, HOE

AND DIPPER, SHOVELS AND SHOVEL ATTACHMENTS, CRANES AND BULLDOZERS.

HANDLING OF HAZARDOUS WASTE MATERIALS: Personnel in all craft classifications subject to working inside a federally designated hazardous perimeter shall be eligible for compensation in

accordance with the following group schedule relative to the level of hazardous waste as outlined in the specific hazardous waste project site safety plan.

H-1 Base wage rate when on a hazardous waste site when not outfitted with protective clothing

H-2 Class "C" Suit - Base wage rate plus \$.25 per hour.

H-3 Class "B" Suit - Base wage rate plus \$.50 per hour.

H-4 Class "A" Suit - Base wage rate plus \$.75 per hour.

ENGI0370C 06/01/2002

	Rates	Fringes
ADAMS, ASOTIN, BENTON, CHELAN (EAST OF THE 120TH MERIDIAN), COLUMBIA, DOUGLAS (EAST OF THE 120TH MERIDIAN), FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN (EAST OF THE 120TH MERIDIAN), PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, WHITMAN AND YAKIMA (EAST OF THE 120TH MERIDIAN) COUNTIES		

ZONE 1:

POWER EQUIPMENT OPERATORS:

GROUP 1A	20.94	6.52
GROUP 1	21.49	6.52
GROUP 2	21.81	6.52
GROUP 3	22.42	6.52
GROUP 4	22.58	6.52
GROUP 5	22.74	6.52
GROUP 6	23.02	6.52
GROUP 7	23.29	6.52
GROUP 8	24.39	6.52

ZONE DIFFERENTIAL (Add to Zone 1 rate): Zone 2 - \$2.00

Zone 1: Within 45 mile radius of Spokane, Moses Lake, Pasco, Washington; Lewiston, Idaho

Zone 2: Outside 45 mile radius of Spokane, Moses Lake, Pasco, Washington; Lewiston, Idaho

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1A: Boat Operator; Crush Feeder; Oiler; Steam Cleaner

GROUP 1: Bit Grinders; Bolt Threading Machine; Compressors (under 2000 CFM, gas, diesel, or electric power); Deck Hand;

Drillers Helper (Assist driller in making drill rod connections, service drill engine and air compressor, repair drill rig and drill tools, drive drill support truck to and on the job site, remove drill cuttings from around bore hole and inspect drill rig while in operation); Fireman & Heater Tender; Grade Checker; Hydro-seeder, Mulcher, Nozzlemaster; Oiler Driver, & Cable Tender, Mucking Machine; Pumpman; Rollers, all types on subgrade, including seal and chip coatings (farm type, Case, John Deere & similar, or Compacting Vibrator), except when pulled by Dozer with operable blade; Welding Machine

GROUP 2: A-frame Truck (single drum); Assistant Refrigeration Plant (under 1000 ton); Assistant Plant Operator, Fireman or Pugmixer (asphalt); Bagley or Stationary Scraper; Belt Finishing Machine; Blower Operator (cement); Cement Hog; Compressor (2000 CFM or over, 2 or more, gas diesel or electric power); Concrete Saw (multiple cut); Distributor Leverman; Ditch Witch or similar; Elevator Hoisting Materials; Dope Pots (power agitated); Fork Lift or Lumber Stacker, hydra-lift & similar; Gin Trucks (pipeline); Hoist, single drum; Loaders (bucket elevators and conveyors); Longitudinal Float; Mixer (portable-concrete); Pavement Breaker, Hydra-Hammer & similar; Power Broom; Railroad Ballast Regulation Operator (self-propelled); Railroad Power Tamper Operator (self-propelled); Railroad Tamper Jack Operator (self-propelled); Spray Curing Machine (concrete); Spreader Box (self-propelled); Straddle Buggy (Ross & similar on construction job only); Tractor (Farm type R/T with attachment, except Backhoe); Tugger Operator

GROUP 3: A-frame Truck (2 or more drums); Assistant Refrigeration Plant & Chiller Operator (over 1000 ton); Backfillers (Cleveland & similar); Batch Plant & Wet Mix Operator, single unit (concrete); Belt-Crete Conveyors with power pack or similar; Belt Loader (Kocal or similar); Bending Machine; Bob Cat; Boring Machine (earth); Boring Machine (rock under 8" bit) (Quarry Master, Joy or similar); Bump Cutter (Wayne, Saginaw or similar); Canal Lining Machine (concrete); Chipper (without crane); Cleaning & Doping Machine (pipeline); Deck Engineer; Elevating Belt-type Loader (Euclid, Barber Green & similar); Elevating Grader-type Loader (Dumort, Adams or similar); Generator Plant Engineers (diesel or electric); Gunitite Combination Mixer & Compressor; Locomotive Engineer; Mixermobile; Mucking Machine; Posthole Auger or Punch; Pump (grout or jet); Soil Stabilizer (P & H or similar); Spreader Machine; Tractor (to D-6 or equivalent) and Traxcavator; Traverse Finish Machine; Turnhead Operator

GROUP 4: Concrete Pumps (squeeze-crete, flow-crete, pump-crete, Whitman & similar); Curb Extruder (asphalt or concrete); Drills (churn, core, calyx or diamond) (operate drilling machine, drive or transport drill rig to and on job site and weld well casing); Equipment Serviceman; Greaser & Oiler;

Hoist (2 or more drums or Tower Hoist); Loaders (overhead & front-end, under 4 yds. R/T); Refrigeration Plant Engineer (under 1000 ton); Rubber-tired Skidders (R/T with or without attachments); Surface Heater & Plant Machine; Trenching Machines (under 7 ft. depth capacity); Turnhead (with re-screening); Vacuum Drill (reverse circulation drill under 8" bit)

GROUP 5: Backhoe (under 45,000 gw); Backhoe & Hoe Ram (under 3/4 yd.); Carrydeck & Boom Truck (under 25 tons); Cranes (25 tons & under), all attachments including clamshell, dragline; Derricks & Stifflegs (under 65 tons); Drilling Equipment (8" bit & over) (Robbins, reverse circulation & similar) (operates drilling machine, drive or transport drill rig to and on job site and weld well casing); Hoe Ram; Piledriving Engineers; Paving (dual drum); Railroad Track Liner Operatr (self-propelled);

Refrigeration Plant Engineer (1000 tons & over); Signalman (Whirleys, Highline Hammerheads or similar)

GROUP 6: Asphalt Plant Operator; Automatic Subgrader (Ditches & Trimmers) (Autograde, ABC, R. A. Hansen & similar on grade wire); Backhoe (45,000 gw and over to 110,000 gw); Backhoes & Hoe Ram (3/4 yd. to 3 yd.); Batch Plant (over 4 units); Batch & Wet Mix Operator (multiple units, 2 & incl. 4); Blade Operator (motor patrol & attachments, Athey & Huber); Boom Cats (side); Cable Controller (dispatcher); Clamshell Operator (under 3 yds.); Compactor (self-propelled with blade); Concrete Pump Boom Truck; Concrete Slip Form Paver; Cranes (over 25 tons, to and including 45 tons), all attachments including clamshell, dragline; Crusher, Grizzle & Screening Plant Operator; Dozer, 834 R/T & similar; Draglines (under 3 yds.); Drill Doctor; H. D. Mechanic; H. D. Welder; Loader Operator (front-end & overhead, 4 yds. incl. 8 yds.); Multiple Dozer Units with single blade; Paving Machine (asphalt and concrete); Quad-Track or similar equipment; Rollerman (finishing asphalt pavement); Roto Mill (pavement grinder); Scrapers, all, rubber-tired; Screed Operator; Shovel (under 3 yds.); Tractors (D-6 & equivalent & over); Trenching Machines (7 ft. depth & over); Tug Boat Operator Vactor guzzler, super sucker

GROUP 7: Backhoe (over 110,000 gw); Backhoes & Hoe Ram (3 yds & over); Blade (finish & bluetop) Automatic, CMI, ABC, Finish Athey & Huber & similar when used as automatic; Cableway Operators; Concrete Cleaning/Decontamination machine operator; Cranes (over 45 tons to but not including 85 tons), all attachments including clamshell and dragline; Derricks & Stifflegs (65 tons & over); Elevating Belt (Holland type); Heavy equipment robotics operator; Loader (360 degrees revolving Koehring Scooper or similar); Loaders (overhead & front-end, over 8 yds. to 10 yds.); Rubber-tired Scrapers (multiple engine with three or more scrapers); Shovels (3 yds. & over); Whirleys & Hammerheads, ALL

GROUP 8: Cranes (85 tons and over, and all climbing, overhead, rail and tower), all attachments including clamshell, dragline; Loaders (overhead and front-end, 10 yards and over); Helicopter Pilot

BOOM PAY: (All Cranes, Including Tower)

180' to 250' \$.30 over scale

Over 250' \$.60 over scale

NOTE: In computing the length of the boom on Tower Cranes, they shall be measured from the base of the Tower to the point of the boom

HAZMAT: Anyone working on HAZMAT jobs, working with supplied air shall receive \$1.00 an hour above classification.

ENGI0370G 06/01/2002

	Rates	Fringes
ADAMS, ASOTIN, BENTON, CHELAN (EAST OF THE 120TH MERIDIAN),		

COLUMBIA, DOUGLAS (EAST OF THE 120TH MERIDIAN), FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN (EAST OF THE 120TH MERIDIAN), PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, WHITMAN AND YAKIMA (EAST OF THE 120TH MERIDIAN) COUNTIES

WORK PERFORMED ON HYDRAULIC DREDGES

GROUP 1:	24.73	6.27
GROUP 2:	25.10	6.27
GROUP 3:	25.13	6.27
GROUP 4:	25.52	6.27
GROUP 5:	24.73	6.27

GROUP 1: Assistant Mate (Deckhand) and Oiler

GROUP 2: Assistant Engineer (Electric, Diesel, Steam, or Booster Pump); Mates and Boatmen

GROUP 3: Engineer Welder

GROUP 4: Leverman, Hydraulic

GROUP 5: Maintenance

HEAVY WAGE RATES APPLIES TO CLAM SHELL DREDGE, HOE AND DIPPER, SHOVELS AND SHOVEL ATTACHMENTS, CRANES AND BULLDOZERS.

ENGI0612A 06/01/2002

	Rates	Fringes
LEWIS, PIERCE, PACIFIC (THAT PORTION WHICH LIES NORTH OF A PARALLEL LINE EXTENDED WEST FROM THE NORTHERN BOUNDARY OF WAHKAUKUM COUNTY TO THE SEA IN THE STATE OF WASHINGTON) AND THURSTON COUNTIES		

PROJECTS:

CATEGORY A PROJECTS (excludes Category B projects, as shown below)

POWER EQUIPMENT OPERATORS:

ZONE 1 (0-25 radius miles):

GROUP 1AAA	31.14	8.40
GROUP 1AA	30.64	8.40
GROUP 1A	30.14	8.40
GROUP 1	29.64	8.40
GROUP 2	29.20	8.40
GROUP 3	28.94	8.40
GROUP 4	26.74	8.40

ZONE 2 (26-45 radius miles) - Add \$.70 to Zone 1 rates

ZONE 3 (Over 45 radius miles) - Add \$1.00 to Zone 1 rates

BASEPOINTS: Tacoma, Olympia, and Centralia

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-300 tons, or 300 ft of boom (including jib with attachments)

GROUP 1AA - Cranes 200 tons to 300 tons, or 250 ft of boom (including jib with attachments); Tower crane over 175 ft in

height, base to boom

GROUP 1A - Crane 100 tons thru 199 tons, or 150 of boom (including jib with attachments); Crane-overhead, bridge type, 100 tons and over; Shovel, excavator, backhoes-6 yds and over with attachments

GROUP 1 - Cableways; Cranes-45 tons thru 99 tons, under 150 ft of boom (including jib with attachments); Crane-overhead, bridge type - 45 tons thru 99 tons; Excavator, shovel, backhoes over 3 yards and under 6 yards; hard tail end dump articulating off-road equipment 45 yards and over; loader-overhead 6 yards to, but not including 8 yards; Mucking machine, mole, tunnel, drill and/or shield; Quad 9, HD 41, D-10; Remote control operator on rubber tired earth moving equipment; Rollagon; Scrapers-self-propelled-45 yds and over; Slipform pavers; Transporters-all track or truck type

GROUP 2 - Barrier machine (zipper); Batch Plant Operator-concrete; Bump cutter; Cranes-20 tons through 44 tons with attachments; Crane-overhead, bridge type-20 tons thru 44 tons; Chipper, Concrete Pump-truck mounted with boom attachment; Crushers; Deck Engineer/Deck Winches (power); Drilling machine; Excavator, shovel, backhoe-3yards and under; Finishing machine, Bidwell, Gamaco and similar equipment; Guardrail punch; Horizontal/directional drill operator; Loaders, overhead under 6

yds.; Loaders, plant feed; Locomotive-all; Mechanics-all; Mixers, asphalt plant; Motor patrol graders-finishing; Piledriver (other than crane mount); Roto-mill, roto grinder; screedman, spreader, topside operator-Blaw Knox, Cedar Rapids, Jaeger, Caterpillar, Barbar Green; Scraper-self propelled, hard tail end dump, articulating off-road equipment under 45 yds.; Subgrader trimmer; Tractors, backhoes over 75 hp.; Transfer material service machine-shuttle buggy, Blaw Knox-Roadtec; Truck Crane Oiler/driver-100 tons and over, Truck Mount Portable Conveyor; Yo Yo Pay dozer.

GROUP 3 - Conveyors; Cranes-thru 19 tons with attachments; Cranes-A-frame over 10 tons; Drill Oilers-Auger type, truck or crane mount; Dozers-D-9 and under; Forklifts-3000 lbs. and over with attachments; Horizontal/directional drill locator; Outside hoists-(elevators and manlifts), air tuggers, strato tower bucket elevators; Hydralifts/Boom Trucks-over 10 tons; Loaders-elevating type, belt; Motor patrol grader-nonfinishing; Plant Oiler-Asphalt, Crusher; Pumps, Concrete; Roller, plant mix or multi-lift materials; Saws-concrete; Scrapers-Concrete and Carry all; Trenching machines; Truck Crane Oiler/Driver-under 100 tons; Tractor, backhoe-under 75 hp

GROUP 4 - Assistant Engineer; Bobcat; Brooms; Compressor; Concrete Finish Machine-laser screed; Crane-A-Frame, 10 tons and under; Elevator and manlift-permanent and shaft type; Forklifts-under 3000 lbs. with attachments; Gradechecker, stakeop; Hydralifts, boom trucks, 10 tons and under; Oil distributors, blower distribution and mulch seeding operator; Pavement breaker; Posthole Digger-mechanical; Power plant;

Pumps-Water; Roller-other than Plant Mix; Wheel Tractors, Farmall type; Shotcrete/Gunite Equipment Operator

CATEGORY B PROJECTS - 95% of the basic hourly rate for each group plus full fringe benefits applicable to Category A projects shall apply to the following projects: Reduced rates may be paid on the following:

1. Projects involving work on structures such as buildings and structures whose total value is less than \$1.5 million excluding mechanical, electrical, and utility portions of the contract.
2. Projects of less than \$1 million where no building is involved. Surfacing and paving included, but utilities excluded.
3. Marine projects (docks, wharfs, etc.) less than \$150,000

WORK PERFORMED ON HYDRAULIC DREDGES:

Total Project cost \$300,000 and over

GROUP 1	28.38	8.40
GROUP 2	28.48	8.40
GROUP 3	28.82	8.40
GROUP 4	28.87	8.40

GROUP 5	30.26	8.40
GROUP 6	28.38	8.40

GROUP 1: Assistant Mate (Deckhand)
 GROUP 2: Oiler
 GROUP 3: Assistant Engineer (Electric, Diesel, Steam or Booster Pump); Mates and Boatmen
 GROUP 4: Craneman, Engineer Welder
 GROUP 5: Leverman, Hydraulic
 GROUP 6: Maintenance

Total Project Cost under \$300,000

GROUP 1	26.96	8.40
GROUP 2	27.06	8.40
GROUP 3	27.38	8.40
GROUP 4	27.43	8.40
GROUP 5	28.75	8.40
GROUP 6	26.96	8.40

GROUP 1: Assistant Mate (Deckhand)
 GROUP 2: Oiler
 GROUP 3: Assistant Engineer (Electric, Diesel, Steam or Booster Pump); Mates and Boatmen
 GROUP 4: Craneman, Engineer Welder
 GROUP 5: Leverman, Hydraulic
 GROUP 6: Maintenance

HEAVY WAGE RATES APPLIES TO CLAM SHEEL DREDGE, HOE AND DIPPER, SHOVELS AND SHOVEL ATTACHMENTS, CRANES AND BULLDOZERS

HANDLING OF HAZARDOUS WASTE MATERIALS

H-1 - When not outfitted with protective clothing of level D equipment - Base wage rate
 H-2 - Class "C" Suit - Base wage rate + \$.25 per hour
 H-3 - Class "B" Suit - Base wage rate + \$.50 per hour
 H-4 - Class "A" Suit - Base wage rate +\$.75 per hour

 ENGI0701D 01/01/2003

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC (SOUTH), SKAMANIA, AND WAHIAKUM COUNTIES		

POWER EQUIPMENT OPERATORS (See Footnote A)

ZONE 1:

GROUP 1	29.30	8.95
GROUP 1A	30.77	8.95
GROUP 1B	32.23	8.95
GROUP 2	28.07	8.95
GROUP 3	27.31	8.95

GROUP 4	26.79	8.95
GROUP 5	26.19	8.95
GROUP 6	23.84	8.95

Zone Differential (add to Zone 1 rates):

Zone 2 - \$1.50

Zone 3 - 3.00

For the following metropolitan counties: MULTNOMAH; CLACKAMAS; MARION; WASHINGTON; YAMHILL; AND COLUMBIA; CLARK; AND COWLITZ COUNTY, WASHINGTON WITH MODIFICATIONS AS INDICATED:

All jobs or projects located in Multnomah, Clackamas and Marion Counties, West of the western boundary of Mt. Hood National Forest and West of Mile Post 30 on Interstate 84 and West of Mile Post 30 on State Highway 26 and West of Mile Post 30 on Highway 22 and all jobs or projects located in Yamhill County, Washington County and Columbia County and all jobs or projects located in Clark & Cowlitz County, Washington except that portion of Cowlitz County in the Mt. St. Helens "Blast Zone" shall receive Zone I pay for all classifications.

All jobs or projects located in the area outside the identified boundary above, but less than 50 miles from the Portland City Hall shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border above, shall receive Zone III pay for all classifications.

For the following cities: ALBANY; BEND; COOS BAY; EUGENE; GRANTS PASS; KLAMATH FALLS; MEDFORD; ROSEBURG

All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone I pay for all classifications.

All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall receive Zone III pay for all classifications.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: CONCRETE: Batch Plant and/or Wet Mix Operator, three units or more; CRANE: Helicopter Operator, when used in erecting work; Whirley Operator, 90 ton and over; LATTICE BOOM CRANE: Operator 200 tons through 299 tons, and/or over 200 feet boom;

HYDRAULIC CRANE: Hydraulic Crane Operator 90 tons through 199 tons with luffing or tower attachments; FLOATING EQUIPMENT: Floating Crane, 150 ton but less than 250 ton

GROUP 1A: HYDRAULIC CRANE: Hydraulic Operator, 200 tons and over (with luffing or tower attachment); LATTICE BOOM CRANE: Operator, 200 tons through 299 tons, with over 200 feet boom; FLOATING EQUIPMENT: Floating Crane 250 ton and over

GROUP 1B: LATTICE BOOM CRANE: Operator, 300 tons through 399 tons with over 200 feet boom; Operator 400 tons and over; FLOATING EQUIPMENT: Floating Crane 350 ton and over

GROUP 2: ASPHALT: Asphalt Plant Operator (any type); Roto Mill, pavement profiler, operator, 6 foot lateral cut and over; BLADE: Auto Grader or "Trimmer" (Grade Checker required); Blade Operator, Robotic; BULLDOZERS: Bulldozer operator over 120,000 lbs and above; Bulldozer operator, twin engine; Bulldozer Operator, tandem, quadnine, D10, D11, and similar type; Bulldozere Robotic Equipment (any type; CONCRETE: Batch Plant and/or Wet Mix Operator, one and two drum; Automatic Concrete Slip Form Paver Operator; Concrete Canal Line Operator; Concrete Profiler, Diamond Head; CRANE: Cableway Operator, 25 tons and over; HYDRAULIC CRANE: Hydraulic crane operator 90 tons through 199 tons (with luffing or tower attachment); TOWER/WHIRLEY OPERATOR: Tower Crane Operator; Whirley Operator, under 90 tons; LATTICE BOOM CRANE: 90 through 199 tons and/or 150 to 200 feet boom; CRUSHER: Crusher Plant Operator; FLOATING EQUIPMENT: Floating Clamshell, etc. operator, 3 cu. yds. and over; Floating Crane (derrick barge) Operator, 30 tons but less than 150 tons; LOADERS: Loader operator, 120,000 lbs. and above; REMOTE CONTROL: Remote controlled earth-moving equipment; RUBBER-TIRED SCRAPERS: Rubber-tired scraper operator, with tandem scrapers, multi-engine; SHOVEL, DRAGLINE, CLAMSHELL, SKOOOPER OPERATOR: Shovel, Dragline, Clamshell, operator 5 cu. yds and over; TRENCHING MACHINE: Wheel Excavator, under 750 cu. yds. per hour (Grade Oiler required); Canal Trimmer (Grade Oiler required); Wheel Excavator, over 750 cu. yds. per hour; Band Wagon (in conjunction with wheel excavator); UNDERWATER EQUIPMENT: Underwater Equipment Operator, remote or otherwise; HYDRAULIC HOES-EXCAVATOR: Excavator over 130,000 lbs.

GROUP 3: BULLDOZERS: Bulldozer operator, over 70,000 lbs. up to and including 120,000 lbs.; HYDRAULIC CRANE: Hydraulic crane operator, 50 tons through 89 tons (with luffing or tower attachment); LATTICE BOOM CRANES: Lattice Boom Crane- 50 through 89 tons (and less than 150 feet boom); FORKLIFT: Rock Hound Operator; HYDRAULIC HOES-EXCAVATOR: excavator over 80,000 lbs. through 130,000 lbs.; LOADERS: Loader operator 60,000 and less than 120,000; RUBBER-TIRED SCRAPERS: Scraper Operator, with

tandem scrapers; Self-loading, paddle wheel, auger type, finish and/or 2 or more units; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Shovel, Dragline, Clamshell operators 3 cu. yds. but less than 5 cu yds.

GROUP 4: ASPHALT: Screed Operator; Asphalt Paver operator (screeman required); BLADE: Blade operator; Blade operator, finish; Blade operator, externally controlled by electronic, mechanical hydraulic means; Blade operator, multi-engine; BULLDOZERS: Bulldozer Operator over 20,000 lbs and more than 100 horse up to 70,000 lbs; Drill Cat Operator; Side-boom Operator; Cable-Plow Operator (any type); CLEARING: Log Skidders; Chippers; Incinerator; Stump Splitter (loader mounted or similar type); Stump Grinder (loader mounted or similar type); Tub Grinder; Land Clearing Machine (Track mounted forestry mowing & grinding machine); Hydro Axe (loader mounted or similar type); COMPACTORS SELF-PROPELLED: Compactor Operator, with blade; Compactor Operator, multi-engine; Compactor Operator, robotic; CONCRETE: Mixer Mobile Operator; Screed Operator; Concrete Cooling Machine Operator; Concrete Paving Road Mixer; Concrete Breaker; Reinforced Tank Banding Machine (K-17 or similar types); Laser Screed; CRANE: Chicago boom and similar types; Lift Slab Machine Operator; Boom type lifting device, 5 ton capacity or less; Hoist Operator, two (2) drum; Hoist Operator, three (3) or more drums; Derrick Operator, under 100 ton; Hoist Operator, stiff leg, guy derrick or similar type, 50 ton and over; Cableway Operator up to twenty (25) ton; Bridge Crane Operator, Locomotive, Gantry, Overhead; Cherry Picker or similar type crane; Carry Deck Operator; Hydraulic Crane Operator, under 50 tons; LATTICE BOOM CRANE OPERATOR: Lattice Boom Crane Operator, under 50 tons; CRUSHER: Generator Operator; Diesel-Electric Engineer; Grizzley Operator; Drill Doctor; Boring Machine Operator; Driller-Percussion, Diamond, Core, Cable, Rotary and similar type; Cat Drill (John Henry); Directional Drill Operator over 20,000 lbs pullback; FLOATING EQUIPMENT: Diesel-electric Engineer; Jack Operator, elevating barges, Barge Operator, self-unloading; Piledriver Operator (not crane type) (Deckhand required); Floating Clamshell, etc. Operator, under 3 cu. yds. (Fireman or Diesel-Electric Engineer required); Floating Crane (derrick barge) Operator, less than 30 tons; GENERATORS: Generator Operator; Diesel-electric Engineer; GUARDRAIL EQUIPMENT: Guardrail Punch Operator (all types); Guardrail Auger Operator (all types); Combination Guardrail machines, i.e., punch auger, etc.; HEATING PLANT: Surface Heater and Planer Operator; HYDRAULIC HOES EXCAVATOR: Robotic Hydraulic backhoe operator, track and wheel type up to and including 20,000 lbs. with any or all attachments; Excavator Operator over 20,000 lbs through 80,000 lbs.; LOADERS: Belt Loaders, Kolman and Ko Cal types; Loaders Operator, front end and overhead, 25,000 lbs and less

than 60,000 lbs; Elevating Grader Operator by Tractor operator, Sierra, Euclid or similar types; PILEDRIERS: Hammer Operator;

Piledriver Operator (not crane type); PIPELINE, SEWER WATER: Pipe Cleaning Machine Operator; Pipe Doping Machine Operator; Pipe Bending Machine Operator; Pipe Wrapping Machine Operator; Boring Machine Operator; Back Filling Machine Operator; REMOTE CONTROL: Concrete Cleaning Decontamination Machine Operator; Ultra High Pressure Water Jet Cutting Tool System Operator/Mechanic; Vacuum Blasting Machine Operator/mechanic; REPAIRMEN, HEAVY DUTY: Diesel Electric Engineer (Plant or Floating; Bolt Threading Machine operator; Drill Doctor (Bit Grinder); H. D. Mechanic; Machine Tool Operator; RUBBER-TIRED SCRAPERS: Rubber-tired Scraper Operator, single engine, single scraper; Self-loading, paddle wheel, auger type under 15 cu. yds.; Rubber-tired Scraper Operator, twin engine; Rubber-tired Scraper Operator, with push-ull attachments; Self Loading, paddle wheel, auger type 15 cu. yds. and over, single engine; Water pulls, water wagons; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Diesel Electric Engineer; Stationary Drag Scraper Operator; Shovel, Dragline, Clamshell, Operator under 3 cy yds.; Grade-all Operator; SURFACE (BASE) MATERIAL: Blade mounted spreaders, Ulrich and similar types; TRACTOR-RUBBERED TIRED: Tractor operator, rubber-tired, over 50 hp flywheel; Tractor operator, with boom attachment; Rubber-tired dozers and pushers (Michigan, Cat, Hough type); Skip Loader, Drag Box; TRENCHING MACHINE: Trenching Machine operator, digging capacity over 3 ft depth; Back filling machine operator; TUNNEL: Mucking machine operator

GROUP 5: ASPHALT: Extrusion Machine Operator; Roller Operator (any asphalt mix); Asphalt Burner and Reconditioner Operator (any type); Roto-Mill, pavement profiler, ground man; BULLDOZERS: Bulldozer operator, 20,000 lbs. or less or 100 horse or less; COMPRESSORS: Compressor Operator (any power), over 1,250 cu. ft. total capacity; COMPACTORS: Compactor Operator, including vibratory; Wagner Pactor Operator or similar type (without blade); CONCRETE: Combination mixer and Compressor Operator, gunite work; Concrete Batch Plant Quality Control Operator; Beltcrete Operator; Pumpcrete Operator (any type); Pavement Grinder and/or Grooving Machine Operator (riding type); Cement Pump Operator, Fuller-Kenyon and similar; Concrete Pump Operator; Grouting Machine Operator; Concrete mixer operator, single drum, under (5) bag capacity; Cast in place pipe laying machine; maginnis Internal Full slab vibrator operator; Concrete finishing mahine operator, Clary, Johnson, Bidwell, Burgess Bridge deck or similar type; Curb Machine Operator, mechanical Berm, Curb and/or Curb and Gutter; Concrete Joint Machine Operator; Concrete Planer Operator; Tower Mobile Operator; Power Jumbo Operator setting slip forms in tunnels; Slip Form Pumps, power driven hydraulic lifting device for concrete forms; Concrete Paving Machine Operator; Concrete Finishing Machine Operator; Concrete Spreader Operator; CRANE: Helicopter Hoist Operator; Hoist Operator, single drum; Elevator Operator; A-frame Truck Operator, Double drum; Boom Truck Operator; HYDRAULIC CRANE OPERATOR: Hydraulic Boom Truck, Pittman; DRILLING: Churm Drill

and Earth Boring Machine Operator; Vacuum Truck; Directional Drill Operator over 20,000 lbs pullback; FLOATING EQUIPMENT:

Fireman; FORKLIFT: Fork Lift, over 10 ton and/or robotic; HYDRAULIC HOES EXCAVATORS: Hydraulic Backhoe Operator, wheel type (Ford, John Deere, Case type); Hydraulic Backhoe Operator track type up to and including 20,000 lbs.; LOADERS: Loaders, rubber-tired type, less than 25,000 lbs; Elevating Grader Operator, Tractor Towed requiring Operator or Grader; Elevating loader operator, Athey and similar types; OILERS: Service oiler (Greaser); PIPELINE-SEWER WATER: Hydra hammer or simialr types; Pavement Breaker Operator; PUMPS: Pump Operator, more than 5 (any size); Pot Rammer Operator; RAILROAD EQUIPMENT: Locomotive Operator, under 40 tons; Ballast Regulator Operator; Ballast Tamper Multi-Purpose Operator; Track Liner Operator; Tie Spacer Operator; Shuttle Car Operator; Locomotive Operator, 40 tons and over; MATERIAL HAULRS: Cat wagon DJB's Volvo similar types; Conveyored material hauler; SURFACING (BASE) MATERIAL: Rock Spreaders, self-propelled; Pulva-mixer or similar types; Chiip Spreading machine operator; Lime spreading operator, construction job siter; SWEEPERS: Sweeper operator (Wayne type) self-propelled construction job site; TRACTOR-RUBBER TIRED: Tractor operator, rubber-tired, 50 hp flywheel and under; Trenching machine operator, maximum digging capacity 3 ft depth; TUNNEL: Dinkey GROUP 6: ASPHALT: Plant Oiler; Plant Fireman; Pugmill Operator (any type); Truck mounted asphalt spreader, with screed; COMPRESSORS: Compressor Operator (any power), under 1,250 cu. ft. total capacity; CONCRETE: Plant Oiler, Assistant Conveyor Operator; Conveyor Operator; Mixer Box Operator (C. T. B., dry batch, etc.); Cement Hog Operator; Concrete Saw Operator; Concrete Curing Machine Operator (riding type); Wire Mat or Brooming Machine Operator; CRANE: Oiler; Fireman, all equipment; Truck Crane Oiler Driver; A-frame Truck Operator, single drum; Tugger or Coffin Type Hoist Operator; CRUSHER: Crusher Oiler; Crusher Feeder; CRUSHER: Crusher oiler; Crusher feeder; DRILLING: Drill Tender; Auger Oiler; FLOATING EQUIPMENT: Deckhand; Boatman; FORKLIFT: Self-propelled Scaffolding Operator, construction job site (exclduing working platform); Fork Lift or Lumber Stacker Operator, construction job site; Ross Carrier Operator, construction job site; Lull Hi-Lift Operator or Similar Type; GUARDRAIL EQUIPMENT: Oiler; Auger Oiler; Oiler, combination guardrail machines; Guardrail Punch Oiler; HEATING PLANT: Temporary Heating Plant Operator; LOADERS: Bobcat, skid steer (less than 1 cu yd.); Bucket Elevator Loader Operator, BarberGreene and similar types; OILERS: Oiler; Guardrail Punch Oiler; Truck Crane Oiler-Driver; Auger Oiler; Grade Oiler, required to check grade; Grade Checker; Rigger; PIPELINE-SEWER WATER: Tar Pot Fireman; Tar Pot Fireman (power agitated); PUMPS: Pump Operator (any power); Hydrostatic Pump Operator; RAILROAD EQUIPMENT: Brakeman; Oiler; Switchman; Motorman; Ballast Jack Tamper Operator; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER, ETC. OPERATOR: Oiler, Grade Oiler (required

to check grade); Grade Checker; Fireman; SWEEPER: Broom operator, self propelled, construction job site; SURFACING (BASE) MATERIAL: Roller Operator, grading of base rock (not asphalt); Tamping Machine operator, mechanical, self-propelled; Hydrographic Seeder Machine Operator; TRENCHING MACHINE: Oiler; Grade Oiler; TUNNEL: Conveyor operator; Air filtration equipment operator

ENGI0701E 06/01/2002

CLARK, COWLITZ, KICKITAT, PACIFIC (SOUTH), SKAMANIA,
AND WAHIAKUM COUNTIES

DREDGING:

	Rates	Fringes
ZONE A		
LEVERMAN, HYDRAULIC	32.43	8.50
LEVERMAN, DIPPER,		
FLOATING CLAMSHELL	30.25	8.50
ASSISTANT ENGINEER	29.25	8.50
TENDERMAN	28.44	8.50
ASSISTANT MATE	26.58	8.50
ZONE B		
LEVERMAN, HYDRAULIC	34.43	8.50
LEVERMAN, DIPPER,		
FLOATING CLAMSHELL	32.25	8.50
ASSISTANT ENGINEER	31.25	8.50
TENDERMAN	30.44	8.50
ASSISTANT MATE	28.58	8.50
ZONE C		
LEVERMAN, HYDRAULIC	35.43	8.50
LEVERMAN, DIPPER,		
FLOATING CLAMSHELL	33.25	8.50
ASSISTANT ENGINEER	32.25	8.50
TENDERMAN	31.44	8.50
ASSISTANT MATE	29.58	8.50

ZONE DESCRIPTION FOR DREDGING:

ZONE A - All jobs or projects located within 30 road miles of Portland City Hall.

ZONE B - Over 30-50 road miles from Portland City Hall.

ZONE C - Over 50 road miles from Portland City Hall.

*All jobs or projects shall be computed from the city hall by the shortest route to the geographical center of the project.

IRON0014F 02/01/2003

Rates Fringes

ADAMS, ASOTIN, BENTON, COLUMBIA, DOUGLAS, FERRY, FRANKLIN,
GARFIELD, GRANT, LINCOLN, OKANOGAN, PEND ORIELLE, SPOKANE,
STEVENS, WALLA WALLA AND WHITMAN COUNTIES

IRONWORKERS	25.52	11.80
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IRON0029I 07/01/2002

	Rates	Fringes
CLARK, COWLITZ, KLINKITAT, PACIFIC, SKAMANIA, AND WAHKAUKUM COUNTIES		

IRONWORKERS	26.97	11.80
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IRON0086B 07/01/2002

	Rates	Fringes
YAKIMA, KITTITAS AND CHELAN COUNTIES		

IRONWORKERS	26.72	11.80
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IRON0086E 07/01/2002

	Rates	Fringes
CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS, MASON, PIERCE, SKAGIT, SNOHOMISH, THURSTON, AND WHATCOM COUNTIES		

IRONWORKERS	27.22	11.80
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LAB00001D 06/01/2002

	Rates	Fringes
CHELAN, DOUGLAS (WEST OF THE 120TH MERIDIAN), KITTITAS AND YAKIMA COUNTIES		

LABORERS:

ZONE 1:

GROUP 1	14.79	6.20
GROUP 2	17.11	6.20
GROUP 3	18.83	6.20
GROUP 4	19.31	6.20
GROUP 5	19.67	6.20

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):

ZONE 2 - \$.70

ZONE 3 - \$1.00

BASE POINTS: CHELAN, SUNNYSIDE, WENATCHEE,
AND YAKIMA

ZONE 1 - Projects within 25 radius miles of the respective city
hall

ZONE 2 - More than 25 but less than 45 radius miles from the
respective city hall

ZONE 3 - More than 45 radius miles from the respective city hall

CALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS,
MASON, PACIFIC (NORTH OF STRAIGHT LINE MADE BY EXTENDING THE
NORTH BOUNDARY WAHKIAKUM COUNTY WEST TO THE PACIFIC OCEAN),
PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON AND WHATCOM
COUNTIES

LABORERS:

ZONE 1:

GROUP 1	17. 71	6. 20
GROUP 2	20. 03	6. 20
GROUP 3	24. 71	6. 20
GROUP 4	25. 19	6. 20
GROUP 5	25. 55	6. 20

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):

ZONE 2 - \$. 70

ZONE 3 - \$1. 00

BASE POINTS: BELLINGHAM, MT. VERNON, EVERETT,
SEATTLE, KENT, TACOMA, OLYMPIA,
CENTRALIA, ABERDEEN, SHELTON, PT.
TOWNSEND, PT. ANGELES, AND BREMERTON

ZONE 1 - Projects within 25 radius miles of the respective city
hall

ZONE 2 - More than 25 but less than 45 radius miles from the
respective city hall

ZONE 3 - More than 45 radius miles from the respective city hall

LABORERS CLASSIFICATIONS

GROUP 1: Landscaping and Planting; Watchman; Window
Washer/Cleaner (detail clean-up, such as but not limited to
cleaning floors, ceilings, walls, windows, etc., prior to final
acceptance by the owner)

GROUP 2: Batch Weighman; Crusher Feeder; Fence Laborer;
Flagman; Pilot Car

GROUP 3: General Laborer; Air, Gas, or Electric Vibrating
Screed; Asbestos Abatement Laborer; Ballast Regulator Machine;
Brush Cutter; Brush Hog Feeder; Burner; Carpenter Tender; Cement
Finisher Tender; Change House or Dry Shack; Chipping Gun (under
30 lbs.); Choker Setter; Chuck Tender; Clean-up Laborer; Concrete
Form Stripper; Curing Laborer; Demolition (wrecking and moving
including charred material); Ditch Digger; Dump Person; Fine
Graders; Firewatch; Form Setter; Gabian Basket Builders; Grout

Machine Tender; Grinders; Guardrail Erector; Hazardous Waste Worker (Level C); Maintenance Person; Material Yard Person; Pot Tender; Rip Rap Person; Riggers; Scale Person; Sloper Sprayer; Signal Person; Stock Piler; Stake Hopper; Toolroom Man (at job site); Topper-Tailer; Track Laborer; Truck Spotter; Vinyl Seamer

GROUP 4: Cement Dumper-Paving; Chipping Gun (over 30 lbs.); Clary Power Spreader; Concrete Dumper/Chute Operator; Concrete Saw Operator; Drill Operator (hydraulic, diamond, airtrac); Faller and Bucker Chain Saw; Grade Checker and Transit Person; Groutmen (pressure) including post tension beams; Hazardous Waste Worker (Level B); High Scaler; Jackhammer; Laserbeam Operator; Manhole Builder-Midman; Mortarman and Hodcarrier; Nozzlemann (concrete pump, green cutter when using combination of high pressure air and water on concrete and rock, sandblast, gunite, shotcrete, water blaster, vacuum blaster); Pavement Breaker; Pipe Layer and Caulker; Pipe Pot Tender; Pipe Reliner (not insert type); Pipe Wrapper; Power Jacks; Railroad Spike Puller-Power; Raker-Asphalt; Rivet Buster; Rodder; Sloper (over 20'); Spreader

(concrete); Tamper and Similar electric, air and gas operated tool; Timber Person-sewer (lagger shorer and cribber); Track Liner Power; Tugger Operator; Vibrator; Well Point Laborer

GROUP 5: Caisson Worker; Miner; Powderman; Re-Timberman; Hazardous Waste Worker (Level A).

LAB00238E 06/01/2002

	Rates	Fringes
ADAMS, ASOTIN, BENTON, COLUMBIA, DOUGLAS (EAST OF THE 120TH MERIDIAN), FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN, PEND OREILLE, STEVENS, SPOKANE, WALLA WALLA AND WHITMAN COUNTIES		

LABORERS:

ZONE 1:

GROUP 1	17.66	5.50
GROUP 2	19.76	5.50
GROUP 3	20.03	5.50
GROUP 4	20.30	5.50
GROUP 5	20.58	5.50
GROUP 6	21.95	5.50

Zone Differential (Add to Zone 1 rate): \$2.00

BASE POINTS: Spokane, Moses Lake, Pasco, Lewiston

Zone 1: 0-45 radius miles from the main post office.

Zone 2: 45 radius miles and over from the main post office.

LABORERS CLASSIFICATIONS

GROUP 1: Flagman; Landscape Laborer; Scaleman; Traffic Control Maintenance Laborer (to include erection and maintenance of barricades, signs and relief of flagperson); Window Washer/Cleaner (detail cleanup, such as, but not limited to cleaning floors, ceilings, walls, windows, etc. prior to final acceptance by the owner)

GROUP 2: Asbestos Abatement Worker; Brush Hog Feeder; Carpenter Tender; Cement Handler; Clean-up Laborer; Concrete Crewman (to include stripping of forms, hand operating jacks on slip form construction, application of concrete curing compounds, pumpcrete machine, signaling, handling the nozzle of squeezecrete or similar machine, 6 inches and smaller); Confined Space Attendant; Concrete Signalman; Crusher Feeder; Demolition (to include clean-up, burning, loading, wrecking and salvage of all material); Dumpman; Fence Erector; Firewatch; Form Cleaning Machine Feeder, Stacker; General Laborer; Grout Machine Header Tender; Guard Rail (to include guard rails, guide and reference posts, sign posts, and right-of-way markers); Hazardous Waste Worker, Level D (no respirator is used and skin protection is minimal); Miner, Class "A" (to include all bull gang, concrete crewman, dumpman and pumpcrete crewman, including distributing pipe, assembly &

dismantle, and nipper); Nipper; Riprap Man; Sandblast Tailhoseman; Scaffold Erector (wood or steel); Stake Jumper; Structural Mover (to include separating foundation, preparation, cribbing, shoring, jacking and unloading of structures); Tailhoseman (water nozzle); Timber Bucker and Faller (by hand); Track Laborer (RR); Truck Loader; Well-Point Man; All Other Work Classifications Not Specially Listed Shall Be Classified As General Laborer

GROUP 3: Asphalt Raker; Asphalt Roller, walking; Cement Finisher Tender; Concrete Saw, walking; Demolition Torch; Dope Pot Firemen, non-mechanical; Driller Tender (when required to move and position machine); Form Setter, Paving; Grade Checker using level; Hazardous Waste Worker, Level C (uses a chemical "splash suit" and air purifying respirator); Jackhammer Operator; Miner, Class "B" (to include brakeman, finisher, vibrator, form setter); Nozzlemán (to include squeeze and flo-crete nozzle); Nozzlemán, water, air or steam; Pavement Breaker (under 90 lbs.); Pipelayer, corrugated metal culvert; Pipelayer, multi-plate; Pot Tender; Power Buggy Operator; Power Tool Operator, gas, electric, pneumatic; Railroad Equipment, power driven, except dual mobile power spiker or puller; Railroad Power Spiker or Puller, dual mobile; Rodder and Spreader; Tamper (to include operation of Barco, Essex and similar tampers); Trencher, Shawnee; Tugger Operator; Wagon Drills; Water Pipe Liner; Wheelbarrow (power driven)

GROUP 4: Air and Hydraulic Track Drill; Brush Machine (to include horizontal construction joint cleanup brush machine, power propelled); Caisson Worker, free air; Chain Saw Operator and Faller; Concrete Stack (to include laborers when laborers working on free standing concrete stacks for smoke or fume control above 40 feet high); Guniting (to include operation of machine and nozzle); Hazardous Waste Worker, Level B (uses same respirator protection as Level A. A supplied air line is provided in conjunction with a chemical "splash suit"); High Scaler; Laser Beam Operator (to include grade checker and elevation control); Miner, Class C (to include miner, nozzle man for concrete, laser beam operator and rigger on tunnels); Monitor Operator (air track or similar mounting); Mortar Mixer; Nozzle man (to include jet blasting nozzle man, over 1,200 lbs., jet blast machine power propelled, sandblast nozzle); Pavement Breaker (90 lbs. and over); Pipelayer (to include working top man, caulker, collar man, jointer, mortar man, rigger, jacker, shorer, valve or meter installer); Pipewraper; Plasterer Tender; Vibrators (all)

GROUP 5 - Drills with Dual Masts; Hazardous Waste Worker, Level A (utilizes a fully encapsulated suit with a self-contained breathing apparatus or a supplied air line); Miner Class "D", (to include raise and shaft miner, laser beam operator on raises and shafts)

GROUP 6 - Powderman

LAB00238G 06/01/2002

	Rates	Fringes
COUNTIES EAST OF THE 120TH MERIDIAN: ADAMS, ASOTIN, BENTON, COLUMBIA, DOUGLAS, FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN, PEND OREILLE, STEVENS, SPOKANE, WALLA WALLA, WHITMAN		
HOD CARRIERS	21.55	5.50

LAB00335A 06/01/2002

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC (SOUTH OF A STRAIGHT LINE MADE BY EXTENDING THE NORTH BOUNDARY LINE OF WAHKIAKUM COUNTY WEST TO THE PACIFIC OCEAN), SKAMANIA AND WAHKIAKUM COUNTIES		

ZONE 1:

LABORERS:

GROUP 1	23.43	6.15
GROUP 2	23.94	6.15
GROUP 3	24.33	6.15
GROUP 4	24.66	6.15
GROUP 5	21.26	6.15
GROUP 6	19.16	6.15

GROUP 7

16. 40

6. 15

Zone Differential (Add to Zone 1 rates):

Zone 2 \$ 0. 65

Zone 3 - 1. 15

Zone 4 - 1. 70

Zone 5 - 2. 75

BASE POINTS: GOLDENDALE, LONGVIEW, AND VANCOUVER

ZONE 1: Projects within 30 miles of the respective city all.

ZONE 2: More than 30 miles but less than 40 miles from the respective city hall.

ZONE 3: More than 40 miles but less than 50 miles from the respective city hall.

ZONE 4: More than 50 miles but less than 80 miles from the respective city hall.

ZONE 5: More than 80 miles from the respective city hall.

LABORERS CLASSIFICATIONS

GROUP 1: Asphalt Plant Laborers; Asphalt Spreaders; Batch Weighman; Broomers; Brush Burners and Cutters; Car and Truck Loaders; Carpenter Tender; Change-House Man or Dry Shack Man; Choker Setter; Clean-up Laborers; Curing, Concrete; Demolition, Wrecking and Moving Laborers; Dumpers, road oiling crew; Dumpmen (for grading crew); Elevator Feeders; Guard Rail, Median Rail Reference Post, Guide Post, Right of Way Marker; Fine Graders; Fire Watch; Form Strippers (not swinging stages); General Laborers; Hazardous Waste Worker; Leverman or Aggregate Spreader (Flaherty and similar types); Loading Spotters; Material Yard Man (including electrical); Pittsburgh Chipper Operator or Similar Types; Railroad Track Laborers; Ribbon Setters (including steel forms); Rip Rap Man (hand placed); Road Pump Tender; Sewer Labor;

Signalman; Skipman; Slopers; Spraymen; Stake Chaser; Stockpiler; Tie Back Shoring; Timber Faller and Bucker (hand labor); Toolroom Man (at job site); Tunnel Bullgang (above ground); Weight-Man-Crusher (aggregate when used)

GROUP 2: Applicator (including pot power tender for same), applying protective material by hand or nozzle on utility lines or storage tanks on project; Brush Cutters (power saw); Burners; Choker Splicer; Clary Power Spreader and similar types; Clean-up Nozzlemans; Green Cutter (concrete, rock, etc.); Concrete Power Buggyman; Concrete Laborer; Crusher Feeder; Demolition and Wrecking Charred Materials; Guniting Nozzlemans; Tender; Guniting or Sand Blasting Pot Tender; Handlers or Mixers of all Materials of an irritating nature (including cement and lime); Tool Operators (includes but not limited to: Dry Pack Machine; Jackhammer; Chipping Guns; Paving Breakers); Pipe Doping and Wrapping; Post Hole Digger, air, gas or electric; Vibrating Screed; Tampers;

Sand Blasting (Wet); Stake-Setter; Tunnel-Muckers, Brakemen, Concrete Crew, Bullgang (underground)

GROUP 3: Asbestos Removal; Bit Grinder; Drill Doctor; Drill Operators, air tracks, cat drills, wagon drills, rubber-mounted drills, and other similar types including at crusher plants; Guniting Nozzlemen; High Scalers, Strippers and Drillers (covers work in swinging stages, chairs or belts, under extreme conditions unusual to normal drilling, blasting, barring-down, or sloping and stripping); Manhole Builder; Powdermen; Concrete Saw Operator; Powdermen; Power Saw Operators (Bucking and Falling); Pumpcrete Nozzlemen; Sand Blasting (Dry); Sewer Timberman; Track Liners, Anchor Machines, Ballast Regulators, Multiple Tampers, Power Jacks, Tugger Operator; Tunnel-Chuck Tenders, Nippers and Timbermen; Vibrator; Water Blaster

GROUP 4: Asphalt Raker; Concrete Saw Operator (walls); Concrete Nozzelman; Grade Checker; Pipelayer; Laser Beam (pipelaying)-applicable when employee assigned to move, set up, align; Laser Beam; Tunnel Miners; Motorman-Dinky Locomotive-Tunnel; Powderman-Tunnel; Shield Operator-Tunnel

GROUP 5: Traffic Flaggers

GROUP 6: Fence Builders

GROUP 7: Landscaping or Planting Laborers

LAB00335L 06/01/2002

	Rates	Fringes
CLARK, COWLITZ, KICKITAT, PACIFIC (SOUTH OF A STRAIGHT LINE MADE BY EXTENDING THE NORTH BOUNDARY LINE OF WAHIAKUM COUNTY WEST TO THE PACIFIC OCEAN), SKAMIA AND WAHIAKUM COUNTIES		

HOD CARRIERS	25.04	6.15
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PAIN0005B 06/01/2002

	Rates	Fringes
STATEWIDE EXCEPT CLARK, COWLITZ, KICKITAT, PACIFIC (SOUTH), SKAMIA, AND WAHIAKUM COUNTIES		

STRIPERS	21.25	6.40
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PAIN0005D 07/01/2002

	Rates	Fringes
CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS, MASON, PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON AND WHATCOM COUNTIES		

PAINTERS	23. 27	5. 36
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PAIN0005G 07/01/2002

	Rates	Fringes
ADAMS, ASOTIN; BENTON AND FRANKLIN (EXCEPT HANFORD SITE); CHELAN, COLUMBIA, DOUGLAS, FERRY, GARFIELD, GRANT, KITTITAS, LINCOLN, OKANOGAN, PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, WHITMAN AND YAKIMA COUNTIES		

PAINTERS*:

Brush, Roller, Striping,		
Steam cleaning and Spray	18. 97	5. 32
Application of Cold Tar		
Products, Epoxies, Polyure		
thanes, Acids, Radiation		
Resistant Material, Water and		
Sandblasting, Bridges, Towers,		
Tanks, Stacks, Steeples	19. 97	5. 32
TV Radio, Electrical Transmission		
Towers	20. 72	5. 32
Lead Abatement, Asbestos		
Abatement	19. 97	5. 32

*\$. 70 shall be paid over and above the basic wage rates listed for work on swing stages and high work of over 30 feet.

PAIN0055C 07/01/2002

	Rates	Fringes
CLARK, COWLITZ, KLINKITAT, PACIFIC, SKAMANIA, AND WAHIAKUM COUNTIES		

PAINTERS:

Brush & Roller	17. 35	5. 08
Spray and Sandblasting	17. 95	5. 08
High work - All work		
60 ft. or higher	18. 10	5. 08

PAIN0055L 06/01/2002

	Rates	Fringes
CLARK, COWLITZ, KLINKITAT, SKAMANIA and WAHIAKUM COUNTIES		

PAINTERS:

HIGHWAY AND PARKING LOT		
STRIPER	23. 36	5. 75

PLAS0072E 06/01/2002

	Rates	Fringes
ADAMS, ASOTIN, BENTON, CHELAN, COLUMBIA, DOUGLAS, FERRY, FRANKLIN, GARFIELD, GRANT, KITTITAS, LINCOLN, OKANOGAN, PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, WHITMAN, AND YAKIMA COUNTIES		

ZONE 1:

CEMENT MASONS	22.33	5.98
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Zone Differential (Add to Zone 1
rate): Zone 2 - \$2.00

BASE POINTS: Spokane, Pasco, Moses Lake, Lewiston

Zone 1: 0 - 45 radius miles from the main post office

Zone 2: Over 45 radius miles from the main post office

PLAS0528A 12/01/2002

	Rates	Fringes
CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (NORTH), PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON, AND WHATCOM COUNTIES		

CEMENT MASON	28.05	9.84
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COMPOSITION, COLOR MASTIC,
TROWEL MACHINE, GRINDER,

POWER TOOLS, GUNNITE NOZZLE	28.30	9.84
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PLAS0555B 06/01/2002

	Rates	Fringes
CLARK, COWLITZ, KLIKITAT, PACIFIC (SOUTH), SKAMANIA, AND WAHKIAKUM COUNTIES		

ZONE 1:

CEMENT MASONS	24.24	9.70
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COMPOSITION WORKERS AND

POWER MACHINERY OPERATORS	24.68	9.70
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CEMENT MASONS ON SUSPENDED,
SWINGING AND/OR HANGING
SCAFFOLD

24.68	9.70
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CEMENT MASONS DOING BOTH
COMPOSITION/POWER MACHINERY
AND SUSPENDED/HANGING

SCAFFOLD	25.13	9.70
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Zone Differential (Add To Zone 1 Rates):

Zone 2 - \$0.65

Zone 3 - 1.15

Zone 4 - 1.70

Zone 5 - 2.75

BASE POINTS: BEND, CORVALLIS, EUGENE, LONGVIEW, MEDFORD,
PORTLAND, SALEM, THE DALLES, VANCOUVER

ZONE 1: Projects within 30 miles of the respective city hall

ZONE 2: More than 30 miles but less than 40 miles from the
respective city hall.

ZONE 3: More than 40 miles but less than 50 miles from the
respective city hall.

ZONE 4: More than 50 miles but less than 80 miles from the
respective city hall.

ZONE 5: More than 80 miles from the respective city hall

PLUMD032B 01/01/2003

	Rates	Fringes
CLALLAM, KING AND JEFFERSON COUNTIES		
PLUMBERS AND PIPEFITTERS	34.18	12.68

PLUMD032D 06/01/2002

	Rates	Fringes
CHELAN, KITTITAS (NORTHERN TIP), DOUGLAS (NORTH), AND OKANOGAN (NORTH) COUNTIES		
PLUMBERS AND PIPEFITTERS	26.13	10.23

PLUMD044C 06/01/2002

	Rates	Fringes
ADAMS (NORTHERN PART), ASOTIN (CLARKSTON ONLY), FERRY (EASTERN PART), LINCOLN (EASTERN PART), PEND ORIELLE, STEVENS, SPOKANE, AND WHITMAN COUNTIES		
PLUMBERS AND PIPEFITTERS	26.16	9.89

PLUMD082A 08/01/2002

	Rates	Fringes
CLARK (NORTHERN TIP INCLUDING WOODLAND), COWLITZ, GRAYS HARBOR, LEWIS, MASON (EXCLUDING NE SECTION), PACIFIC, PIERCE SKAMANIA, THURSTON AND WAHIAKUM COUNTIES		
PLUMBERS AND PIPEFITTERS	29.60	11.62

PLUMD265C 08/01/2002

	Rates	Fringes
ISLAND, SKAGIT, SNOHOMISH, SAN JUAN AND WHATCOM COUNTIES		

PLUMBERS AND PIPEFITTERS	29. 00	11. 62
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PLUMD290K 10/01/2002

	Rates	Fringes
CLARK (ALL EXCLUDING NORTHERN TIP INCLUDING CITY OF WOODLAND)		
PLUMBERS AND PIPEFITTERS	31. 73	12. 93

PLUMD598E 06/01/2002

	Rates	Fringes
ADAMS (SOUTHERN PART), ASOTIN (EXCLUDING THE CITY OF CLARKSTON), BENTON, COLUMBIA, DOUGLAS (EASTERN HALF), FERRY (WESTERN PART), FRANKLIN, GARFIELD, GRANT, KITTITAS (ALL BUT NORTHERN TIP), KLICKITAT, LINCOLN (WESTERN PART), OKANOGAN (EASTERN), WALLA WALLA AND YAKIMA COUNTIES		

PLUMBERS	29. 85	12. 59
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PLUMD631A 08/01/2002

	Rates	Fringes
MASON (NE SECTION), AND KITSAP COUNTIES		

PLUMBERS/PIPEFITTERS:

All new construction, additions,
and remodeling of commercial
building projects such as:
cocktail lounges and taverns,
professional buildings, medical
clinics, retail stores, hotels
and motels, restaurants and fast
food types, gasoline service
stations, and car washes where
the plumbing and mechanical cost
of the project is less than
\$100,000

19. 20	4. 58
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All other work where the plumbing
and mechanical cost of the project
is \$100,000 and over

27. 84	11. 62
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TEAMD037C 06/01/2002

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC (South of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean), SKAMANIA, AND WAHIAKUM COUNTIES		

TRUCK DRIVERS

ZONE 1:

GROUP 1	23.65	8.45
GROUP 2	23.77	8.45
GROUP 3	23.90	8.45
GROUP 4	24.16	8.45
GROUP 5	24.38	8.45
GROUP 6	24.54	8.45
GROUP 7	24.74	8.45

Zone Differential (Add to Zone 1 Rates):

Zone 2 -	\$0.65
Zone 3 -	1.15
Zone 4 -	1.70
Zone 5 -	2.75

BASE POINTS: ASTORIA, THE DALLES, LONGVIEW AND VANCOUVER

ZONE 1: Projects within 30 miles of the respective city hall.

ZONE 2: More than 30 miles but less than 40 miles from the respective city hall.

ZONE 3: More than 40 miles but less than 50 miles from the respective city hall.

ZONE 4: More than 50 miles but less than 80 miles from the respective city hall.

ZONE 5: More than 80 miles from the respective city hall.

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: A Frame or Hydra lift truck w/load bearing surface; Articulated dump truck; Battery Rebuilders; Bus or Manhaul Driver; Concrete Buggies (power operated); Concrete pump truck; Dump Trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations there of: up to and including 10 cu. yds.; Lift Jitneys, Fork Lifts (all sizes in loading, unloading and transporting material on job site); Loader and/or Leverman on Concrete Dry Batch Plant (manually operated); Pilot Car; Pickup truck; Solo Flat Bed and misc. Body Trucks, 0-10 tons; Truck Tender; Truck Mechanic Tender; Water Wagons (rated capacity) up to 3,000 gallons; Transit Mix and Wet or Dry Mix - 5 cu. yds. and under; Lubrication Man, Fuel Truck Driver, Tireman, Wash Rack, Steam Cleaner or combinations; Team Driver; Slurry Truck Driver or Leverman; Tireman

GROUP 2: Boom truck/hydra lift or retracting crane; Challenger; Dumpsters or similar equipment all sizes; Dump Trucks/articulated dumps 6 cu to 10 cu.; Flaherty Spreader Driver or Leverman; Lowbed Equipment, Flat Bed Semi-trailer or doubles transporting equipment or wet or dry materials; Lumber Carrier, Driver-Straddle Carrier (used in loading, unloading and transporting of materials on job site); Oil Distributor Driver or

Leverman; Transit mix and wet or dry mix trucks: over 5 cu. yds. and including 7 cu. yds.; Vacuum trucks; Water truck/Wagons (rated capacity) over 3,000 to 5,000 gallons

GROUP 3: Ammonia nitrate distributor driver; Dump trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations thereof: over 10 cu. yds. and including 30 cu. yds. includes Articulated dump trucks; Selfpropelled street sweeper; Transit mix and wet or dry mix truck: over 7 cu yds. and including 11 cu yds.; Truck Mechanic-Welder-Body Repairman; Utility and cleanup truck; Water Wagons (rated capacity) over 5,000 to 10,000 gallons

GROUP 4: Asphalt burner; Dump Trucks, side, end and bottom dumps, including Semi-Trucks and Trains or combinations thereof: over 30 cu. yds. and including 50 cu. yds. includes articulated dump trucks; Fire guard; Transit Mix and Wet or Dry Mix Trucks, over 11 cu. yds. and including 15 cu. yds.; Water Wagon (rated capacity) over 10,000 gallons to 15,000 gallons

GROUP 5: Dump Trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations thereof: over 50 cu. yds. and including 60 cu. yds. includes articulated dump trucks

GROUP 6: Bulk cement spreader w/o auger; Dry prebatch concrete mix trucks; Dump trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations thereof: over 60 cu. yds. and including 80 cu. yds., and includes articulated dump trucks; Skid truck

GROUP 7: Dump Trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations thereof: over 80 cu. yds. and including 100 cu. yds., includes articulated dump trucks; Industrial lift truck (mechanical tailgate)

TEAMD174A 06/01/2002

	Rates	Fringes
CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (North of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean), PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON AND WHATCOM COUNTIES		

TRUCK DRIVERS;

ZONE A:

GROUP 1:	25.79	9.68
GROUP 2:	25.21	9.68
GROUP 3:	22.81	9.68
GROUP 4:	18.56	9.68
GROUP 5:	25.55	9.68

ZONE B (25-45 miles from center of listed cities*):

Add \$.70 per hour to Zone A rates.

ZONE C (over 45 miles from center of listed cities*):

Add \$1.00 per hour to Zone A rates.

*Zone pay will be calculated from the city center of the following listed cities:

BELLINGHAM	CENTRALIA	RAYMOND	OLYMPIA
EVERETT	SHELTON	ANACORTES	BELLEVUE
SEATTLE	PORT ANGELES	MT. VERNON	KENT
TACOMA	PORT TOWNSEND	ABERDEEN	BREMERTON

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 - "A-frame or Hydralift" trucks and Boom trucks or similar equipment when "A" frame or "Hydralift" and Boom truck or

similar equipment is used; Buggymobile; Bulk Cement Tanker; Dumpsters and similar equipment, Tournorockers, Tournowagon, Tournotrailer, Cat DW series, Terra Cobra, Le Tourneau, Westinghouse, Athye Wagon, Euclid Two and Four-Wheeled power tractor with trailer and similar top-loaded equipment transporting material: Dump Trucks, side, end and bottom dump, including semi-trucks and trains or combinations thereof with 16 yards to 30 yards capacity: Over 30 yards \$.15 per hour additional for each 10 yard increment; Explosive Truck (field mix) and similar equipment; Hyster Operators (handling bulk loose aggregates); Lowbed and Heavy Duty Trailer; Road Oil Distributor Driver; Spreader, Flaherty Transit mix used exclusively in heavy construction; Water Wagon and Tank Truck-3,000 gallons and over capacity

GROUP 2 - Bulllifts, or similar equipment used in loading or unloading trucks, transporting materials on job site; Dumpsters, and similar equipment, Tournorockers, Tournowagon, Tournotrailer, Cat. D.W. Series, Terra Cobra, Le Tourneau, Westinghouse, Athye wagon, Euclid two and four-wheeled power tractor with trailer and similar top-loaded equipment transporting material: Dump trucks, side, end and bottom dump, including semi-trucks and trains or combinations thereof with less than 16 yards capacity; Flatbed (Dual Rear Axle); Grease Truck, Fuel Truck, Greaser, Battery Service Man and/or Tire Service Man; Leverman and loader at bunkers and batch plants; Oil tank transport; Scissor truck; Slurry Truck; Sno-Go and similar equipment; Swampers; Straddler Carrier (Ross, Hyster) and similar equipment; Team Driver; Tractor (small, rubber-tired) (when used within Teamster jurisdiction); Vacuum truck; Water Wagon and Tank trucks-less than 3,000 gallons capacity; Winch Truck; Wrecker, Tow truck and similar equipment

GROUP 3 - Flatbed (single rear axle); Pickup Sweeper; Pickup

Truck. (Adjust Group 3 upward by \$2.00 per hour for onsite work only)

GROUP 4 - Escort or Pilot Car

GROUP 5 - Mechanic

HAZMAT PROJECTS

Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:

LEVEL C: +\$.25 per hour - This level uses an air purifying respirator or additional protective clothing.

LEVEL B: +\$.50 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit."

LEVEL A: +\$.75 per hour - This level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

TEAM0760C 06/01/2002

	Rates	Fringes
ADAMS, ASOTIN, BENTON, CHELAN, COLUMBIA, DOUGLAS, FERRY, FRANKLIN, GARFIELD, GRANT KITTITAS, LINCOLN, OKANOGAN, PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, AND WHITMAN COUNTIES		

TRUCK DRIVERS

(ANYONE WORKING ON HAZMAT JOBS SEE FOOTNOTE A BELOW)

ZONE 1: (INCLUDES ALL OF YAKIMA COUNTY)

GROUP 1	17.73	8.50
GROUP 2	20.00	8.50
GROUP 3	20.50	8.50
GROUP 4	20.83	8.50
GROUP 5	20.94	8.50
GROUP 6	21.11	8.50
GROUP 7	21.64	8.50
GROUP 8	21.97	8.50

Zone Differential (Add to Zone 1
rate: Zone 2 - \$2.00)

BASE POINTS: Spokane, Moses Lake, Pasco, Lewiston

Zone 1: 0-45 radius miles from the main post office.

Zone 2: 45 radius miles and over from the main post office

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Escort Driver or Pilot Car; Employee Haul; Power Boat Hauling Employees or Material

GROUP 2: Fish Truck; Flat Bed Truck; Fork Lift (3000 lbs. and under); Leverperson (loading trucks at bunkers); Trailer Mounted Hydro Seeder and Mulcher; Seeder & Mulcher; Stationary Fuel Operator; Tractor (small, rubber-tired, pulling trailer or similar equipment)

GROUP 3: Auto Crane (2000 lbs. capacity); Buggy Mobile & Similar; Bulk Cement Tanks & Spreader; Dumptor (6 yds. & under); Flat Bed Truck with Hydraulic System; Fork Lift (3001-16,000 lbs.); Fuel Truck Driver, Steamcleaner & Washer; Power Operated Sweeper; Rubber-tired Tunnel Jumbo; Scissors Truck; Slurry Truck Driver; Straddle Carrier (Ross, Hyster, & similar); Tireperson; Transit Mixers & Truck Hauling Concrete (3 yd. to & including 6 yds.); Trucks, side, end, bottom & articulated end dump (3 yards to and including 6 yds.); Warehouseperson (to include shipping & receiving); Wrecker & Tow Truck

GROUP 4: A-Frame; Burner, Cutter, & Welder; Service Greaser; Trucks, side, end, bottom & articulated end dump (over 6 yards to and including 12 yds.); Truck Mounted Hydro Seeder; Warehouseperson; Water Tank truck (0-8,000 gallons)

GROUP 5: Dumptor (over 6 yds.); Lowboy (50 tons & under); Self-loading Roll Off; Semi-Truck & Trailer; Tractor with Steer Trailer; Transit Mixers and Trucks Hauling Concrete (over 6 yds.

to and including 10 yds.); Trucks, side, end, bottom and end dump (over 12 yds. to & including 20 yds.); Truck-Mounted Crane (with load bearing surface either mounted or pulled, up to 14 ton); Vacuum Truck (super sucker, guzzler, etc.)

GROUP 6: Flaherty Spreader Box Driver; Flowboys; Fork Lift (over 16,000 lbs.); Dumps (Semi-end); Mechanic (Field); Semi-end Dumps; Transfer Truck & Trailer; Transit Mixers & Trucks Hauling Concrete (over 10 yds. to & including 20 yds.); Trucks, side, end, bottom and articulated end dump (over 20 yds. to & including 40 yds.); Truck and Pup; Tournarocker, DW s & similar with 2 or more 4 wheel-power tractor with trailer, gallonage or yardage scale, whichever is greater Water Tank Truck (8,001-14,000 gallons)

GROUP 7: Oil Distributor Driver; Stringer Truck (cable operated trailer); Transit Mixers & Trucks Hauling Concrete (over 20 yds.); Truck, side, end, bottom end dump (over 40 yds. to & including 100 yds.); Truck Mounted Crane (with load bearing surface either mounted or pulled (16 through 25 tons);

GROUP 8: Prime Movers and Stinger Truck; Trucks, side, end, bottom and articulated end dump (over 100 yds.); Helicopter Pilot Hauling Employees or Materials

Footnote A - Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:

LEVEL C-D: - \$.50 PER HOUR (This is the lowest level of protection. This level may use an air purifying respirator or additional protective clothing.

LEVEL A-B: - \$1.00 PER HOUR (Uses supplied air in conjunction with a chemical splash suit or fully encapsulated suit with a self-contained breathing apparatus.

NOTE: Trucks Pulling Equipment Trailers: shall receive \$.15/hour over applicable truck rate

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.)

and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor

200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.
END OF GENERAL DECISION

WAIS Document Retrieval
GENERAL DECISION WA030002 06/13/2003 WA2

Date: June 13, 2003
General Decision Number WA030002

Superseded General Decision No. WA020002

State: Washington

Construction Type:
BUILDING

County(ies):

CHELAN	KITSAP	PIERCE
CLALLAM	KITTITAS	SNOHOMISH
GRAYS HARBOR	LEWIS	THURSTON
JEFFERSON	MASON	
KING	PACIFIC	

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories)

Modification Number	Publication Date
0	06/13/2003

COUNTY(ies):

CHELAN	KITSAP	PIERCE
CLALLAM	KITTITAS	SNOHOMISH
GRAYS HARBOR	LEWIS	THURSTON
JEFFERSON	MASON	
KING	PACIFIC	

ASBE0007A 06/01/2002

	Rates	Fringes
ASBESTOS WORKERS/INSULATORS: (Includes application of all insulating materials, protective coverings, coating and finishes to all types of mechanical systems)	31.07	6.86

BOIL0242B 10/01/2002

	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
BOILERMAKERS	27.22	13.30

BOIL0502B 10/01/2002

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC, PIERCE, SNOHOMISH AND THURSTON COUNTIES		

BOILERMAKERS	27. 22	13. 55

BRWA0001A 08/01/2002		
	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (northern part), PIERCE, SNOHOMISH AND THURSTON COUNTIES		
BRICKLAYERS	29. 02	7. 85

BRWA0001F 06/01/2002		
	Rates	Fringes
PACIFIC COUNTY (SOUTHERN PART)		
BRICKLAYERS	26. 62	10. 10
MARBLE MASONS	27. 62	10. 10

BRWA0001G 05/01/2002		
	Rates	Fringes
PACIFIC (SOUTHERN PORTION) COUNTY		
TILE SETTER AND TERRAZZO WORKERS	23. 90	8. 23
TILE AND TERRAZZO FINISHERS	17. 99	6. 27

BRWA0001H 08/01/2002		
	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (NORTHERN HALF), PIERCE, THURSTON AND SNOHOMISH COUNTIES		
TILE AND TERRAZZO WORKERS	26. 44	7. 79
TILE AND TERRAZZO FINISHERS	20. 72	7. 34

BRWA0003A 06/01/2002		
	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
BRICKLAYERS	23. 16	8. 81

BRWA0003E 07/01/2002		
	Rates	Fringes
CLELAN AND KITTITAS		
TILE AND TERRAZZO FINISHERS	14. 70	5. 83

BRWA0003F 07/01/2002		
	Rates	Fringes
CLELAN AND KITTITAS		
TERRAZZO WORKERS & TILE LAYER	18. 50	5. 83

CARP0770E 06/01/2002

WESTERN WASHINGTON: CLALLAM, GRAYS HARBOR, JEFFERSON, KING,
KITSAP, LEWIS, MASON, PACIFIC (NORTH), PIERCE, SNOHOMISH AND
THURSTON COUNTIES

	Rates	Fringes
CARPENTERS AND DRYWALL APPLICATORS	27.95	8.05
CARPENTERS ON CREOSOTE MATERIAL	28.05	8.05
INSULATION APPLICATORS	25.50	8.05
SAWFILERS, STATIONARY POWER SAW OPERATORS, FLOOR FINISHER, FLOOR LAYER, SHINGLER, FLOOR SANDER OPERATORS OF OTHER STATIONARY WOOD WORKING TOOLS	28.08	8.05
MILLWRIGHT AND MACHINE ERECTORS	28.95	8.05
ACOUSTICAL WORKERS	28.11	8.05
PILEDRIIVER, DRIVING, PULLING, CUTTING, PLACING COLLARS, SETTING, WELDING OR CREOSOTE TREATED MATERIAL, ALL PILING	28.15	8.05
PILDRIVER, BRIDGE DOCK & WHARF CARPENTERS	27.95	8.05
DIVERS	68.97	8.05
DIVERS TENDER	30.68	8.05

(HOURLY ZONE PAY: WESTERN WASHINGTON AND CENTRAL WASHINGTON
CARPENTERS ONLY)

Hourly Zone Pay shall be paid on jobs located outside
of the free zone computed from the city center of the
following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay		
0 - 25	radius miles	Free
25- 35	radius miles	\$1.00/hour
35- 45	radius miles	\$1.15/hour
45- 55	radius miles	\$1.35/hour
Over 55	radius miles	\$1.55/hour

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON- MILLWRIGHTS AND
PILEDRIIVERS ONLY)

Hour Zone Pay shall be computed from Seattle Union
Hall, Tacoma City center, and Everett City center

Zone Pay

0 - 25 radius miles	Free
25- 45 radius miles	\$. 70/hour
Over 45 radius miles	\$1. 50/hour

Millwrights and Piledrivers who reside in Aberdeen, Bellingham, Port Angeles, Mount Vernon, Olympia, Wenatchee, or Yakima Local Union jurisdiction areas, working on jobs in their respective area, shall have their Zone Pay measured from their respective city center

CENTRAL WASHINGTON: CHELAN AND KITTITAS COUNTIES

CARPENTERS AND DRYWALL APPLICATORS	20. 72	7. 82
CARPENTERS ON CREOSOTED MATERIALS	20. 82	7. 82
INSULATION APPLICATORS	20. 72	7. 82
SAWFILER, STATIONARY POWER SAW OPERATORS, FLOOR FINISHER, FLOOR LAYER, SHINGLERS, FLOOR SANDER OPERATOR AND OPERATORS OF OTHER STATIONARY WOOD WORKING TOOLS	20. 85	7. 82
MILLWRIGHTS AND MACHINE ERECTORS	28. 95	7. 82
ACCOUSTICAL WORKERS	20. 98	7. 82
PILEDRIVER, DRIVING, PULLING, CUTTING, PLACING COLLARS, SETTING, WELDING, OR CREOSOTE TREATED MATERIAL, ALL PILING	28. 15	7. 82
PILEDRIVER, BRIDGE DOCK & WHARF CARPENTERS	27. 95	7. 82
DIVERS	68. 97	8. 05
DIVERS TENDER	30. 68	8. 05

CARP9003A 06/01/2002

PACIFIC COUNTY (South of a straight line made by extending the north boundary line of Wahkiakum County west to Willapa Bay to the Pacific Ocean, and thence north through the natural waterway to the Pacific Ocean (this will include the entire peninsula west of Willapa Bay)

SEE ZONE DESCRIPTION FOR CITIES BASE POINTS

ZONE 1:

CARPENTERS	27. 37	8. 80
DRYWALL, ACOUSTICAL & LATHERS	27. 37	8. 80
FLOOR LAYERS & FLOOR FINISHERS (the laying of all hardwood floors nailed and mastic set, parquet and wood-type tiles, and block floors, the sanding and finishing of floors, the preparation of old and new floors when the materials mentioned above are to be installed; INSULATORS		

(fiberglass and similar irritating material)	27.52	8.80
MILLWRIGHTS	27.87	8.80
PILEDRIVERS	27.87	8.80
DIVERS	65.05	8.80
DIVERS TENDERS	29.91	8.80

Zone Differential (Add to Zone 1 rates):

Zone 2 - \$0.85

Zone 3 - 1.25

Zone 4 - 1.70

Zone 5 - 2.00

Zone 6 - 3.00

BASEPOINTS: GOLDENDALE, LONGVIEW, AND VANCOUVER

ZONE 1: Projects located within 30 miles of the respective city hall of the above mentioned cities

ZONE 2: Projects located more than 30 miles and less than 40 miles of the respective city of the above mentioned cities

ZONE 3: Projects located more than 40 miles and less than 50 miles of the respective city of the above mentioned cities

ZONE 4: Projects located more than 50 miles and less than 60 miles of the respective city of the above mentioned cities.

ZONE 5: Projects located more than 60 miles and less than 70 miles of the respective city of the above mentioned cities

ZONE 6: Projects located more than 70 miles of the respected city of the above mentioned cities

ELEC0046B 12/30/2002

	Rates	Fringes
CALLAM, JEFFERSON, KING AND KITSAP COUNTIES		
ELECTRICIANS	34.25	3%+9.55
CABLE SPLICERS	37.68	3%+9.55

ELEC0046C 03/03/2003

	Rates	Fringes
CALLAM, JEFFERSON, KING, KITSAP COUNTIES		
SOUND AND COMMUNICATION TECHNICIAN	21.39	4.63

SCOPE OF WORK

Includes the installation, testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound vision and digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems,

microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, fire alarms and life safety systems (hang, terminate devices and panels and to conduct functional and systems tests), and low voltage master clock systems.

WORK EXCLUDED

Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems.

Energy management systems.

SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope).

ELEC0076A 07/01/2002

	Rates	Fringes
GRAYS HARBOR, LEWIS, MASON, PACIFIC, PIERCE, THURSTON COUNTIES		
ELECTRICIANS	29.78	3%+11.01
CABLE SPLICERS	32.76	3%+11.01

ELEC0076D 06/01/2001

	Rates	Fringes
GRAYS HARBOR, LEWIS, MASON, PACIFIC, PIERCE AND THURSTON COUNTIES		
SOUND AND COMMUNICATIONS TECHNICIAN	18.77	5.97

SCOPE OF WORK

Includes the installation, testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms and low voltage master clock systems.

A. Communication systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems

SCADA (Supervisory control/data acquisition)

PCM (Pulse code modulation)

Inventory control systems

Digital data systems

Broadband & baseband and carriers

Point of sale systems

VSAT data systems

Data communication systems

RF and remote control systems

Fiber optic data systems

B. Sound and Voice Transmission/Transference Systems

Background-Foreground Music
Intercom and Telephone Interconnect Systems
Sound and Musical Entertainment Systems
Nurse Call Systems
Radio Page Systems
School Intercom and Sound Systems
Burglar Alarm Systems
Low-Voltage Master Clock Systems
Multi-Media/Multiplex Systems
Telephone Systems
RF Systems and Antennas and Wave Guide

C. *Fire Alarm Systems-installation, wire pulling and testing.

D. Television and Video Systems

Television Monitoring and Surveillance Systems
Video Security Systems
Video Entertainment Systems
Video Educational Systems

Microwave Transmission Systems
CATV and CCTV

E. Security Systems

Perimeter Security Systems
Vibration Sensor Systems
Sonar/Infrared Monitoring Equipment
Access Control Systems
Card Access Systems

***Fire Alarm Systems**

1. Fire Alarms-In Raceways
 - a. Wire and cable pulling, in raceways, performed at the current electrician wage rate and fringe benefits.
 - b. Installation and termination of devices, panels, startup, testing and programming performed by the technician.
2. Fire Alarms-Open Wire Systems
 - a. Open wire systems installed by the technician.

ELEC0112B 06/01/2002		
	Rates	Fringes
KITTITAS COUNTY		
ELECTRICIANS	28.75	3%+9.63
CABLE SPLICERS	30.19	3%+9.63

ELEC0112G 06/01/2002		
	Rates	Fringes
KITTITAS COUNTY		

SCOPE OF WORK

The work covered shall include the installation, testing, service and maintenance, of the following systems that utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for TV monitoring and surveillance, background foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms and low voltage master clock systems.

A. Communication systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems

SCADA (Supervisory control/data acquisition

PCM (Pulse code modulation)

Inventory control systems

Digital data systems

Broadband & baseband and carriers

Point of sale systems

VSAT data systems

Data communication systems

RF and remote control systems

Fiber optic data systems

B. Sound and Voice Transmission/Transference Systems

Background-Foreground Music

Intercom and Telephone Interconnect Systems

Sound and Musical Entertainment Systems

Nurse Call Systems

Radio Page Systems

School Intercom and Sound Systems

Burglar Alarm Systems

Low-Voltage Master Clock Systems

Multi-Media/Multiplex Systems

Telephone Systems

RF Systems and Antennas and Wave Guide

C. *Fire Alarm Systems-installation, wire pulling and testing.

D. Television and Video Systems

Television Monitoring and Surveillance Systems

Video Security Systems

Video Entertainment Systems

Video Educational Systems

Microwave Transmission Systems

CATV and CCTV

E. Security Systems

Perimeter Security Systems

Vibration Sensor Systems
 Sonar/Infrared Monitoring Equipment
 Access Control Systems
 Card Access Systems

***Fire Alarm Systems**

1. Fire Alarms-In Raceways
 - a. Wire and cable pulling, in raceways, performed at the current electrician wage rate and fringe benefits.
 - b. Installation and termination of devices, panels, startup, testing and programing performed by the technician.
2. Fire Alarms-Open Wire Systems
 - a. Open wire systems installed by the technician.

ELEC0191A 12/01/2002		
	Rates	Fringes
CHELAN COUNTY		
ELECTRICIANS	26. 66	3%+9. 28
CABLE SPLICERS	29. 33	3%+9. 28

ELEC0191E 06/01/2002		
	Rates	Fringes
CHELAN AND SNOHOMISH COUNTIES		
SOUND AND COMMUNICATIONS		
TECHNICIANS	21. 50	4. 84

SCOPE OF WORK

The work covered shall include the installation, testing, service and maintenance, of the following systems that utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for TV monitoring and surveillance, background foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms and low voltage master clock systems.

A. Communication systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems

SCADA (Supervisory control/data acquisition)

PCM (Pulse code modulation)

Inventory control systems

Digital data systems

Broadband & baseband and carriers

Point of sale systems

VSAT data systems

Data communication systems

RF and remote control systems

Fiber optic data systems

B. Sound and Voice Transmission/Transference Systems

Background-Foreground Music
Intercom and Telephone Interconnect Systems
Sound and Musical Entertainment Systems
Nurse Call Systems
Radio Page Systems
School Intercom and Sound Systems
Burglar Alarm Systems
Low-Voltage Master Clock Systems
Multi-Media/Multiplex Systems
Telephone Systems
RF Systems and Antennas and Wave Guide

C. *Fire Alarm Systems-installation, wire pulling and testing.

D. Television and Video Systems

Television Monitoring and Surveillance Systems
Video Security Systems
Video Entertainment Systems
Video Educational Systems
Microwave Transmission Systems

CATV and CCTV

E. Security Systems

Perimeter Security Systems
Vibration Sensor Systems
Sonar/Infrared Monitoring Equipment
Access Control Systems
Card Access Systems

***Fire Alarm Systems**

1. Fire Alarms-In Raceways

- a. Wire and cable pulling, in raceways, performed at the current electrician wage rate and fringe benefits.
- b. Installation and termination of devices, panels, startup, testing and programming performed by the technician.

2. Fire Alarms-Open Wire Systems

- a. Open wire systems installed by the technician.

ELEC0191L 08/31/2002

	Rates	Fringes
SNOHOMISH COUNTY		
ELECTRICIANS	30.66	3%+9.33
CABLE SPLICERS	33.72	3%+9.33

ELEV0019B 01/01/2003

	Rates	Fringes
CHELAN, CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP,		
KITTITAS, LEWIS, MASON, PIERCE, SNOHOMISH AND THURSTON COUNTIES		

ELEVATOR MECHANICS

33.745

9.355+a

FOOTNOTE a: Vacation Pay: 8% with 5 or more years of service, 6% for 6 months to 5 years service. Paid Holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Friday after, and Christmas Day.

ELEV0023B 01/01/2003

	Rates	Fringes
PACIFIC COUNTY		
ELEVATOR MECHANIC	33.915	9.355+a

FOOTNOTE a: Vacation Pay: 8% with 5 or more years of service, 6% for 6 months to 5 years service. Paid Holidays: Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Friday after, and Christmas Day, and New Years Day.

ENGI0302B 06/01/2002

	Rates	Fringes
CHELAN (WEST OF THE 120TH MERIDIAN), CLALLAM, GRAYS HARBOR,		
JEFFERSON, KING, KITSAP, KITTITAS, MASON AND SNOHOMISH COUNTIES		

ON PROJECTS DESCRIBED IN FOOTNOTE A BELOW, THE RATE FOR EACH GROUP SHALL BE 95% OF THE BASE RATE PLUS FULL FRINGE BENEFITS. ON ALL OTHER WORK, THE FOLLOWING RATES APPLY.

POWER EQUIPMENT OPERATORS:
Zone 1 (0-25 radius miles):

GROUP 1AAA	31.14	8.40
GROUP 1AA	30.64	8.40
GROUP 1A	30.14	8.40
GROUP 1	29.64	8.40
GROUP 2	29.20	8.40
GROUP 3	28.84	8.40
GROUP 4	26.74	8.40

Zone Differential (Add to Zone 1 rates):

Zone 2 (26-45 radius miles) - \$.70

Zone 3 (Over 45 radius miles) - \$1.00

BASEPOINTS: Aberdeen, Bellingham, Bremerton, Everett, Kent, Mount Vernon, Port Angeles, Port Townsend, Seattle, Shelton, Wenatchee, Yakima

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-over 300 tons, or 300 ft of boom (including jib with attachments)

GROUP 1AA - Cranes 200 to 300 tons, or 250 ft of boom (including jib with attachments); Tower crane over 175 ft in height, base to boom

GROUP 1A - Cranes, 100 tons thru 199 tons, or 150 ft of boom (including jib with attachments); Crane-overhead, bridge type, 100 tons and over; Tower crane up to 175 ft in height base to boom; Loaders-overhead, 8 yards and over; Shovels, excavator, backhoes-6 yards and over with attachments

GROUP 1 - Cableway; Cranes 45 tons thru 99 tons, under 150 ft of boom (including jib with attachments); Crane-overhead, bridge type, 45 tons thru 99 tons; Derricks on building work; Excavator, shovel, backhoes over 3 yards and under 6 yards; Hard tail end dump articulating off-road equipment 45 yards and over; Loader-overhead 6 yards to, but not including 8 yards; Mucking machine, mole, tunnel, drill and/or shield; Quad 9, HD 41, D-10; Remote control operator on rubber tired earth moving equipment; Rollagon; Scrapers-self propelled 45 yards and over; Slipform pavers; Transporters, all truck or track type

GROUP 2 - Barrier machine (zipper); Batch Plant Operator-Concrete; Bump Cutter; Cranes, 20 tons thru 44 tons with attachments; Crane-overhead, bridge type-20 tons through 44 tons; Chipper; Concrete Pump-truck mount with boom attachment; Crusher; Deck Engineer/Deck Winches (power); Drilling machine; Excavator,

shovel, backhoe-3 yards and under; Finishing Machine, Bidwell, Gamaco and similar equipment; Guardrail punch; Horizontal/directional drill operator; Loaders-overhead under 6 yards; Loaders-plant feed; Locomotives-all; Mechanics-all; Mixers-asphalt plant; Motor patrol graders-finishing; Piledriver (other than crane mount); Roto-mill, roto-grinder; Screedman, spreader, topside operator-Blaw Knox, Cedar Rapids, Jaeger, Caterpillar, Barbar Green; Scraper-self propelled, hard tail end dump, articulating off-road equipment-under 45 yards; Subgrade trimmer; Tractors, backhoes-over 75 hp; Transfer material service machine-shuttle buggy, blaw knox-roadtec; Truck crane oiler/driver-100 tons and over; Truck Mount portable conveyor; Yo Yo Pay dozer

GROUP 3 - Conveyors; Cranes-thru 19 tons with attachments; A-frame crane over 10 tons; Drill oilers-auger type, truck or crane mount; Dozers-D-9 and under; Forklift-3000 lbs. and over with attachments; Horizontal/directional drill locator; Outside hoists-(elevators and manlifts), air tuggers, strato tower bucket elevators; Hydralifts/boom trucks over 10 tons; Loader-elevating type, belt; Motor patrol grader-nonfinishing; Plant oiler-asphalt, crusher; Pumps-concrete; Roller, plant mix or multi-lift materials; Saws-concrete; Scrapers-concrete and carry-all; Service engineer-equipment; Trenching machines; Truck Crane Oiler/Driver under 100 tons; Tractors, backhoe 75 hp and under

GROUP 4 - Assistant Engineer; Bobcat; Brooms; Compressor; Concrete finish machine-laser screed; Cranes-A frame-10 tons and under; Elevator and Manlift-permanent or shaft type; Gradechecker, Stakehop; Forklifts under 3000 lbs. with attachments; Hydralifts/boom trucks, 10 tons and under; Oil distributors, blower distribution and mulch seeding operator; Pavement breaker; Posthole digger, mechanical; Power plant; Pumps, water; Rigger and Bellman; Roller-other than plant mix;

Wheel Tractors, farmall type; Shotcrete/gunite equipment operator

FOOTNOTE A- Reduced rates may be paid on the following:

1. Projects involving work on structures such as buildings and bridges whose total value is less than \$1.5 million excluding mechanical, electrical, and utility portions of the contract.
2. Projects of less than \$1 million where no building is involved. Surfacing and paving included, but utilities excluded.
3. Marine projects (docks, wharfs, etc.) less than \$150,000.

HANDLING OF HAZARDOUS WASTE MATERIALS: Personnel in all craft classifications subject to working inside a federally designated hazardous perimeter shall be eligible for compensation in accordance with the following group schedule relative to the level of hazardous waste as outlined in the specific hazardous waste project site safety plan.

H-1 Base wage rate when on a hazardous waste site when not

outfitted with protective clothing

H-2 Class "C" Suit - Base wage rate plus \$.25 per hour.

H-3 Class "B" Suit - Base wage rate plus \$.50 per hour.

H-4 Class "A" Suit - Base wage rate plus \$.75 per hour.

ENGI0370I 06/01/2002

	Rates	Fringes
CHELAN (EAST OF THE 120TH MERIDIAN) COUNTY		

ZONE 1:

POWER EQUIPMENT OPERATORS:

GROUP 1A	20.44	6.52
GROUP 1	20.99	6.52
GROUP 2	21.31	6.52
GROUP 3	21.92	6.52
GROUP 4	22.08	6.52
GROUP 5	22.24	6.52
GROUP 6	22.52	6.52
GROUP 7	22.79	6.52
GROUP 8	23.89	6.52

ZONE DIFFERENTIAL (Add to Zone 1
rate): Zone 2 - \$2.00

Zone 1: Within 45 mile radius of Spokane, Moses Lake, Pasco,
Washington; Lewiston, Idaho

Zone 2: Outside 45 mile radius of Spokane, Moses Lake, Pasco,
Washington; Lewiston, Idaho

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1A: Boat Operator; Crush Feeder; Oiler; Steam Cleaner

GROUP 1: Bit Grinders; Bolt Threading Machine; Compressors

(under 2000 CFM, gas, diesel, or electric power); Deck Hand; Drillers Helper (assist driller in making drill rod connections, service drill engine and air compressor, repair drill rig and drill tools; drive drill support truck to and on the job site, remove drill cuttings from around bore hole and inspect drill rig while in operation); Fireman & Heat Tender; Grade Checker; Hydro-seeder, Mulcher, Nozzleman; Oiler Driver, & Cable Tender, Mucking Machine; Pumpman; Rollers, all types on subgrade, including seal and chip coatings (farm type, Case, John Deere & similar, or Compacting Vibrator), except when pulled by Dozer with operable blade; Welding Machine

GROUP 2: A-frame Truck (single drum); Assistant Refrigeration Plant (under 1000 ton); Assistant Plant Operator, Fireman or Pugmiser (asphalt); Bagley or Stationary Scraper; Belt Finishing Machine; Blower Operator (cement); Cement Hog; Compressor (2000 CFM or over, 2 or more, gas diesel or electric power); Concrete Saw (multiple cut); Distributor Leverman; Ditch Witch or similar; Elevator Hoisting Materials; Dope Pots (power agitated); Fork Lift or Lumber Stacker, hydra-lift & similar; Gin Trucks

(pipeline); Hoist, single drum; Loaders (bucket elevators and conveyors); Longitudinal Float; Mixer (portable-concrete); Pavement Breaker, Hydra-Hammer & similar; Power Broom; Railroad Ballast Regulation Operator (self-propelled); Railroad Power Tamber Operator (self-propelled); Railroad Tamber Jack Operator (self-propelled); Spray Curing Machine (concrete); Spreader Box (self-propelled); Straddle Buggy (Ross & similar on construction job only); Tractor (Farm type R/T with attachment, except Backhoe); Tugger Operator

GROUP 3: A-frame Truck (2 or more drums); Assistant Refrigeration Plant & Chiller Operator (over 1000 ton); Backfillers (Cleveland & similar); Batch Plant & Wet Mix Operator, single unit (concrete); Belt-Crete Conveyors with power pack or similar; Belt Loader (Kocal or similar); Bending Machine; Bob Cat; Boring Machine (earth); Boring Machine (rock under 8" bit) (Quarry Master, Joy or similar); Bump Cutter (Wayne, Saginaw or similar); Canal Lining Machine (concrete); Chipper (without crane); Cleaning & Doping Machine (pipeline); Deck Engineer; Elevating Belt-type Loader (Euclid, Barber Green & similar); Elevating Grader-type Loader (Dumor, Adams or similar); Generator Plant Engineers (diesel or electric); Gunnite Combination Mixer & Compressor; Locomotive Engineer; Mixermobile; Mucking Machine; Posthole Auger or Punch; Pump (grout or jet); Soil Stabilizer (P & H or similar); Spreader Machine; Tractor (to D-6 or equivalent) and Traxcavator; Traverse Finish Machine; Turnhead Operator

GROUP 4: Concrete Pumps (squeeze-crete, flow-crete, pump-crete, Whitman & similar); Curb Extruder (asphalt or concrete); Drills (churn, core, calyx or diamond) (Operate drilling machine, drive or transport drill rig to and on job site and weld well casing); Equipment Serviceman, Greaser & Oiler; Hoist (2 or more drums or Tower Hoist); Loaders (overhead & front-end, under 4 yds. R/T); Refrigeration Plant Engineer (under 1000 ton); Rubber-tired Skidders (R/T with or without attachments); Surface Heater & Planer Machine; Trenching Machines (under 7 ft. depth capacity);

Turnhead (with re-screening); Vacuum Drill (reverse circulation drill under 8" bit)

GROUP 5: Backhoe (under 45,000 gw); Backhoe and Hoe Ram (under 3/4 yd.); Carrydeck & boom truck (under 25 tons); Cranes (25 tons & under), all attachments including clamshell, dragline); Derricks & Stifflegs (under 65 tons); Drilling Equipment (8" bit & over) (Robbins, reverse circulation & similar) (operates drill machine, drive or transport drill rig to and on job site and weld well casing); Hoe Ram; Piledriving Engineers; Paving (dual drum); Railroad Track Liner Operator (self-propelled); Refrigeration Plant Engineer (1000 tons & over); Signalman (Whirleys, Highline Hammerheads or similar)

GROUP 6: Asphalt Plant Operator; Automatic Subgrader (Ditches & Trimmers) (Autograde, ABC, R. A. Hansen & similar on grade wire); Backhoe (45,000 gw and over to 110,000 gw); Backhoes & Hoe Ram (3/4 yd. to 3 yd.); Batch Plant (over 4 units); Batch & Wet Mix Operator (multiple units, 2 & incl. 4); Blade Operator (Motor Patrol & Attachments, Athey & Huber); Boom Cats (side); Cableway

Controller (dispatcher); Clamshell Operator (under 3 yds.); Compactor (self-propelled with blade); Concrete Pump Boom Truck; Concrete Slip Form Paver; Cranes (over 25 tons including 45 tons), all attachments including clamshell, dragline; Crusher, Grizzle & Screening Plant Operator; Dozer, 834 R/T & similar; Draglines (under 3 yds.); Drill Doctor; H. D. Mechanic; H. D. Welder; Loader Operator (front-end & overhead, 4 yds. incl. 8 yds.); Multiple Dozer Units with single blade; Paving Machine (asphalt and concrete); Quad-Track or similar equipment; Roller (finishing asphalt pavement); Roto Mill (pavement grinder); Scrapers, all rubber-tired; Screed Operator; Shovel (under 3 yds.); Tractors (D-6 & equivalent & over); Trenching Machines (7 ft. depth & over); Tug Boat Operator; Vector Guzzler, super sucker

GROUP 7: Backhoe (over 110,000 gw); Backhoes & Hoe Ram (3 yds. & over); Blade (finish & bluetop), Automatic, CMI, ABC, Finish Athey & Huber & similar when used as automatic; Cableway Operators; Clamshell Operator (3 yds. & over); Cranes (over 45 tons to but not including 85 tons), all attachments including clamshell and dragline; Derricks & Stifflegs (65 tons & over); Draglines (3 yds. & over); Elevating Belt (Holland type); Heavy Equipment Robotics Operator; Loader (360 degrees revolving Koehring Scooper or similar); Loaders (overhead & front-end, over 8 yds. to 10 yds.); Rubber-tired Scrapers (multiple engine with three or more scrapers); Shovels (3 yds. & over); Ultra High Pressure Waterjet Cutting Tool System Operator (30,000 psi); Vacuum Blasting Machine Operator; Whirleys & Hammerheads, ALL

GROUP 8: Cranes (85 tons and over, and all climbing, overhead, rail and tower); Loaders (overhead and front-end, 10 yards and over); Helicopter Pilot

BOOM PAY: (All Cranes, Including Tower)
180' to 250' \$.30 over scale

Over 250'

\$.60 over scale

NOTE: In computing the length of the boom on Tower Cranes, they shall be measured from the base of the tower to the point of the boom.

HAZMAT: Anyone working on HAZMAT jobs, working with supplied air shall receive \$1.00 an hour above classification.

ENGI0612B 06/01/2002

LEWIS, PIERCE, PACIFIC (portion lying north of a parallel line extending west from the northern boundary of Wahkaikum County to the sea) AND THURSTON COUNTIES

ON PROJECTS DESCRIBED IN FOOTNOTE A BELOW, THE RATE FOR EACH GROUP SHALL BE 90% OF THE BASE RATE PLUS FULL FRINGE BENEFITS. ON ALL OTHER WORK, THE FOLLOWING RATES APPLY.

POWER EQUIPMENT OPERATORS:

Zone 1 (0-25 radius miles):

GROUP 1AAA	31.14	8.40
GROUP 1AA	30.64	8.40
GROUP 1A	30.14	8.40
GROUP 1	29.64	8.40
GROUP 2	29.20	8.40
GROUP 3	28.84	8.40
GROUP 4	26.74	8.40

Zone Differential (Add to Zone 1 rates):

Zone 2 (26-45 radius miles) = \$.70

Zone 3 (Over 45 radius miles) - \$1.00

BASEPOINTS: CENTRALIA, OLYMPIA, TACOMA

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1 AAA - Cranes-over 300 tons or 300 ft of boom (including jib with attachments)

GROUP 1AA - Cranes- 200 tons to 300 tons, or 250 ft of boom (including jib with attachments; Tower crane over 175 ft in height, base to boom)

GROUP 1A - Cranes, 100 tons thru 199 tons, or 150 ft of boom (including jib with attachments); Crane-overhead, bridge type, 100 tons and over; Tower crane up to 175 ft in height base to boom; Loaders-overhead, 8 yards and over; Shovels, excavator, backhoes-6 yards and over with attachments

GROUP 1 - Cableway; Cranes 45 tons thru 99 tons under 150 ft of boom (including jib with attachments); Crane-overhead, bridge type, 45 tons thru 99 tons; Derricks on building work; Excavator, shovel, backhoes over 3 yards and under 6 yards; Hard tail end dump articulating off-road equipment 45 yards and over; Loader-overhead, 6 yards to, but not including, 8 yards; Mucking

machine, mole, tunnel, drill and/or shield; Quad 9 HD 41, D-10; Remote control operator on rubber tired earth moving equipment; Rollagon; Scrapers-self-propelled 45 yards and over; Slipform pavers; Transporters, all track or truck type

GROUP 2 - Barrier machine (zipper); Batch Plant Operator-concrete; Bump Cutter; Cranes, 20 tons thru 44 tons with attachments; Crane-Overhead, bridge type, 20 tons through 44 tons; Chipper; Concrete pump-truck mount with boom attachment; Crusher; Deck engine/deck winches (power); Drilling machine; Excavator, shovel, backhoe-3 yards and under; Finishing machine, Bidwell, Gamaco and similar equipment; Guardrail punch; Loaders, overhead under 6 yards; Loaders-plant feed; Locomotives-all; Mechanics- all; Mixers, asphalt plant; Motor patrol graders, finishing; Piledriver (other than crane mount); Roto-mill, roto-grinder; Screedman, spreader, topside operator-Blaw Knox, Cedar Rapids, Jaeger, Caterpillar, Barbar Green; Scraper-self-propelled, hard tail end dump, articulating off-road equipment-under 45 yards; Subgrader trimmer; Tractors, backhoe over 75

hp; Transfer material service machine-shuttle buggy, Blaw Knox-Roadtec; Truck Crane oiler/driver-100 tons and over; Truck Mount Portable Conveyor; Yo Yo pay

GROUP 3 - Conveyors; Cranes through 19 tons with attachments; Crane-A-frame over 10 tons; Drill oilers-auger type, truck or crane mount; Dozer-D-9 and under; Forklift-3000 lbs. and over with attachments; Horizontal/directional drill locator; Outside Hoists-(elevators and manlifts), air tuggers, strato tower bucket elevators; Hydralifts/boom trucks over 10 tons; Loaders-elevating type, belt; Motor patrol grader-nonfinishing; Plant oiler-asphalt, crusher; Pump-Concrete; Roller, plant mix or multi-lfit materials; Saws-concrete; Scrapers, concrete and carry all; Service engineers-equipment; Trenching machines; Truck crane oiler/driver under 100 tons; Tractors, backhoe under 75 hp

GROUP 4 - Assistant Engineer; Bobcat; Brooms; Compressor; Concrete Finish Machine-laser screed; Cranes A-frame 10 tons and under; Elevator and manlift (permanent and shaft type); Forklifts-under 3000 lbs. with attachments; Gradechecker, stakeop; Hydralifts/boom trucks, 10 tons and under; Oil distributors, blower distribution and mulch seeding operator; Pavement breaker; Posthole digger-mechanical; Power plant; Pumps-water; Rigger and Bellman; Roller-other than plant mix; Wheel Tractors, farmall type; Shotcrete/gunite equipment operator

FOOTNOTE A- Reduced rates may be paid on the following:

1. Projects involving work on structures such as buildings and bridges whose total value is less than \$1.5 million excluding mechanical, electrical, and utility portions of the contract.
2. Projects of less than \$1 million where no building is involved. Surfacing and paving included, but utilities excluded.
3. Marine projects (docks, wharfs, etc.) less than \$150,000.

HANDLING OF HAZARDOUS WASTE MATERIALS: Personnel in all craft classifications subject to working inside a federally designated hazardous perimeter shall be eligible for compensation in accordance with the following group schedule relative to the level of hazardous waste as outlined in the specific hazardous waste project site safety plan.

H-1 Base wage rate when on a hazardous waste site when not outfitted with protective clothing

H-2 Class "C" Suit - Base wage rate plus \$.25 per hour.

H-3 Class "B" Suit - Base wage rate plus \$.50 per hour.

H-4 Class "A" Suit - Base wage rate plus \$.75 per hour.

ENGI0701H 01/01/2003

	Rates	Fringes
PACIFIC (remaining portion) COUNTY		

POWER EQUIPMENT OPERATORS (See Footnote A)

ZONE 1:

GROUP 1	29.30	8.95
GROUP 1A	30.77	8.95
GROUP 1B	32.23	8.95
GROUP 2	28.07	8.95
GROUP 3	27.31	8.95
GROUP 4	26.79	8.95
GROUP 5	26.19	8.95
GROUP 6	23.84	8.95

Zone Differential (add to Zone 1 rates):

Zone 2 - \$1.50

Zone 3 - 3.00

For the following metropolitan counties: MULTNOMAH; CLACKAMAS; MARION; WASHINGTON; YAMHILL; AND COLUMBIA; CLARK; AND COWLITZ COUNTY, WASHINGTON WITH MODIFICATIONS AS INDICATED:

All jobs or projects located in Multnomah, Clackamas and Marion Counties, West of the western boundary of Mt. Hood National Forest and West of Mile Post 30 on Interstate 84 and West of Mile Post 30 on State Highway 26 and West of Mile Post 30 on Highway 22 and all jobs or projects located in Yamhill County, Washington County and Columbia County and all jobs or projects located in Clark & Cowlitz County, Washington except that portion of Cowlitz County in the Mt. St. Helens "Blast Zone" shall receive Zone I pay for all classifications.

All jobs or projects located in the area outside the identified boundary above, but less than 50 miles from the Portland City Hall shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border above, shall receive Zone III pay for all classifications.

For the following cities: ALBANY; BEND; COOS BAY; EUGENE; GRANTS PASS; KLAMATH FALLS; MEDFORD; ROSEBURG

All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone I pay for all classifications.

All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall receive Zone III pay for all classifications.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: CONCRETE: Batch Plant and/or Wet Mix Operator, three

units or more; CRANE: Helicopter Operator, when used in erecting work; Whirley Operator, 90 ton and over; LATTICE BOOM CRANE: Operator 200 tons through 299 tons, and/or over 200 feet boom; HYDRAULIC CRANE: Hydraulic Crane Operator 90 tons through 199 tons with luffing or tower attachments; FLOATING EQUIPMENT: Floating Crane, 150 ton but less than 250 ton

GROUP 1A: HYDRAULIC CRANE: Hydraulic Operator, 200 tons and over (with luffing or tower attachment); LATTICE BOOM CRANE: Operator, 200 tons through 299 tons, with over 200 feet boom; FLOATING EQUIPMENT: Floating Crane 250 ton and over

GROUP 1B: LATTICE BOOM CRANE: Operator, 300 tons through 399 tons with over 200 feet boom; Operator 400 tons and over; FLOATING EQUIPMENT: Floating Crane 350 ton and over

GROUP 2: ASPHALT: Asphalt Plant Operator (any type); Roto Mill, pavement profiler, operator, 6 foot lateral cut and over; BLADE: Auto Grader or "Trimmer" (Grade Checker required); Blade Operator, Robotic; BULLDOZERS: Bulldozer operator over 120,000 lbs and above; Bulldozer operator, twin engine; Bulldozer Operator, tandem, quadnine, D10, D11, and similar type; Bulldozere Robotic Equipment (any type; CONCRETE: Batch Plant and/or Wet Mix Operator, one and two drum; Automatic Concrete Slip Form Paver Operator; Concrete Canal Line Operator; Concrete Profiler, Diamond Head; CRANE: Cableway Operator, 25 tons and over; HYDRAULIC CRANE: Hydraulic crane operator 90 tons through 199 tons (with luffing or tower attachment); TOWER/WHIRLEY OPERATOR: Tower Crane Operator; Whirley Operator, under 90 tons; LATTICE BOOM CRANE: 90 through 199 tons and/or 150 to 200 feet boom; CRUSHER: Crusher Plant Operator; FLOATING EQUIPMENT: Floating Clamshell, etc. operator, 3 cu. yds. and over; Floating Crane (derrick barge) Operator, 30 tons but less than 150 tons; LOADERS: Loader operator, 120,000 lbs. and above; REMOTE CONTROL: Remote controlled earth-moving equipment; RUBBER-TIRED SCRAPERS: Rubber-tired scraper operator, with tandem scrapers, multi-engine; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Shovel, Dragline, Clamshell, operator 5 cu. yds and over; TRENCHING MACHINE: Wheel Excavator, under 750 cu. yds. per hour (Grade Oiler required); Canal Trimmer (Grade Oiler required); Wheel Excavator,

over 750 cu. yds. per hour; Band Wagon (in conjunction with wheel excavator); UNDERWATER EQUIPMENT: Underwater Equipment Operator, remote or otherwise; HYDRAULIC HOES- EXCAVATOR: Excavator over 130,000 lbs.

GROUP 3: BULLDOZERS: Bulldozer operator, over 70,000 lbs. up to and including 120,000 lbs.; HYDRAULIC CRANE: Hydraulic crane operator, 50 tons through 89 tons (with luffing or tower attachment); LATTICE BOOM CRANES: Lattice Boom Crane- 50 through 89 tons (and less than 150 feet boom); FORKLIFT: Rock Hound Operator; HYDRAULIC HOES- EXCAVATOR: excavator over 80,000 lbs. through 130,000 lbs.; LOADERS: Loader operator 60,000 and less than 120,000; RUBBER-TIRED SCRAPERS: Scraper Operator, with tandem scrapers; Self-loading, paddle wheel, auger type, finish and/or 2 or more units; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER

OPERATOR: Shovel, Dragline, Clamshell operators 3 cu. yds. but less than 5 cu yds.

GROUP 4: ASPHALT: Screed Operator; Asphalt Paver operator (screeman required); BLADE: Blade operator; Blade operator, finish; Blade operator, externally controlled by electronic, mechanical hydraulic means; Blade operator, multi-engine; BULLDOZERS: Bulldozer Operator over 20,000 lbs and more than 100 horse up to 70,000 lbs; Drill Cat Operator; Side-boom Operator; Cable-Plow Operator (any type); CLEARING: Log Skidders; Chippers; Incinerator; Stump Splitter (loader mounted or similar type); Stump Grinder (loader mounted or similar type; Tub Grinder; Land Clearing Machine (Track mounted forestry mowing & grinding machine); Hydro Axe (loader mounted or similar type); COMPACTORS SELF- PROPELLED: Compactor Operator, with blade; Compactor Operator, multi-engine; Compactor Operator, robotic; CONCRETE: Mixer Mobile Operator; Screed Operator; Concrete Cooling Machine Operator; Concrete Paving Road Mixer; Concrete Breaker; Reinforced Tank Banding Machine (K-17 or similar types); Laser Screed; CRANE: Chicago boom and similar types; Lift Slab Machine Operator; Boom type lifting device, 5 ton capacity or less; Hoist Operator, two (2) drum; Hoist Operator, three (3) or more drums; Derrick Operator, under 100 ton; Hoist Operator, stiff leg, guy derrick or similar type, 50 ton and over; Cableway Operator up to twenty (25) ton; Bridge Crane Operator, Locomotive, Gantry, Overhead; Cherry Picker or similar type crane; Carry Deck Operator; Hydraulic Crane Operator, under 50 tons; LATTICE BOOM CRANE OPERATOR: Lattice Boom Crane Operator, under 50 tons; CRUSHER: Generator Operator; Diesel-Electric Engineer; Grizzly Operator; Drill Doctor; Boring Machine Operator; Driller-Percussion, Diamond, Core, Cable, Rotary and similar type; Cat Drill (John Henry); Directional Drill Operator over 20,000 lbs pullback; FLOATING EQUIPMENT: Diesel-electric Engineer; Jack Operator, elevating barges, Barge Operator, self-unloading; Piledriver Operator (not crane type) (Deckhand required); Floating Clamshell, etc. Operator, under 3 cu. yds. (Fireman or Diesel-Electric Engineer required); Floating Crane (derrick barge) Operator, less than 30 tons; GENERATORS: Generator Operator; Diesel-electric Engineer; GUARDRAIL EQUIPMENT: Guardrail Punch Operator (all types); Guardrail Auger Operator (all types); Combination Guardrail machines, i.e., punch

auger, etc.; HEATING PLANT: Surface Heater and Planer Operator; HYDRAULIC HOES EXCAVATOR: Robotic Hydraulic backhoe operator, track and wheel type up to and including 20,000 lbs. with any or all attachments; Excavator Operator over 20,000 lbs through 80,000 lbs.; LOADERS: Belt Loaders, Kolman and Ko Cal types; Loaders Operator, front end and overhead, 25,000 lbs and less than 60,000 lbs; Elevating Grader Operator by Tractor operator, Sierra, Euclid or similar types; PILEDRIVERS: Hammer Operator; Piledriver Operator (not crane type); PIPELINE, SEWER WATER: Pipe Cleaning Machine Operator; Pipe Doping Machine Operator; Pipe Bending Machine Operator; Pipe Wrapping Machine Operator; Boring Machine Operator; Back Filling Machine Operator; REMOTE CONTROL: Concrete Cleaning Decontamination Machine Operator; Ultra High Pressure Water Jet Cutting Tool System Operator/Mechanic; Vacuum Blasting Machine Operator/mechanic; REPAIRMEN, HEAVY DUTY: Diesel

Electric Engineer (Plant or Floating; Bolt Threading Machine operator; Drill Doctor (Bit Grinder); H. D. Mechanic; Machine Tool Operator; RUBBER-TIRED SCRAPERS: Rubber-tired Scraper Operator, single engine, single scraper; Self-loading, paddle wheel, auger type under 15 cu. yds.; Rubber-tired Scraper Operator, twin engine; Rubber-tired Scraper Operator, with push-ull attachments; Self Loading, paddle wheel, auger type 15 cu. yds. and over, single engine; Water pulls, water wagons; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Diesel Electric Engineer; Stationary Drag Scraper Operator; Shovel, Dragline, Clamshell, Operator under 3 cy yds.; Grade-all Operator; SURFACE (BASE) MATERIAL: Blade mounted spreaders, Ulrich and similar types; TRACTOR-RUBBERED TIRED: Tractor operator, rubber-tired, over 50 hp flywheel; Tractor operator, with boom attachment; Rubber-tired dozers and pushers (Michigan, Cat, Hough type); Skip Loader, Drag Box; TRENCHING MACHINE: Trenching Machine operator, digging capacity over 3 ft depth; Back filling machine operator; TUNNEL: Mucking machine operator

GROUP 5: ASPHALT: Extrusion Machine Operator; Roller Operator (any asphalt mix); Asphalt Burner and Reconditioner Operator (any type); Roto-Mill, pavement profiler, ground man; BULLDOZERS: Bulldozer operator, 20,000 lbs. or less or 100 horse or less; COMPRESSORS: Compressor Operator (any power), over 1,250 cu. ft. total capacity; COMPACTORS: Compactor Operator, including vibratory; Wagner Pactor Operator or similar type (without blade); CONCRETE: Combination mixer and Compressor Operator, gunite work; Concrete Batch Plant Quality Control Operator; Beltcrete Operator; Pumpcrete Operator (any type); Pavement Grinder and/or Grooving Machine Operator (riding type); Cement Pump Operator, Fuller-Kenyon and similar; Concrete Pump Operator; Grouting Machine Operator; Concrete mixer operator, single drum, under (5) bag capacity; Cast in place pipe laying machine; maginnis Internal Full slab vibrator operator; Concrete finishing machine operator, Clary, Johnson, Bidwell, Burgess Bridge deck or similar type; Curb Machine Operator, mechanical Berm, Curb and/or Curb and Gutter; Concrete Joint Machine Operator; Concrete Planer Operator; Tower Mobile Operator; Power Jumbo Operator setting slip forms in tunnels; Slip Form Pumps, power driven hydraulic lifting device for concrete forms; Concrete Paving Machine Operator; Concrete Finishing Machine

Operator; Concrete Spreader Operator; CRANE: Helicopter Hoist Operator; Hoist Operator, single drum; Elevator Operator; A-frame Truck Operator, Double drum; Boom Truck Operator; HYDRAULIC CRANE OPERATOR: Hydraulic Boom Truck, Pittman; DRILLING: Churm Drill and Earth Boring Machine Operator; Vacuum Truck; Directional Drill Operator over 20,000 lbs pullback; FLOATING EQUIPMENT: Fireman; FORKLIFT: Fork Lift, over 10 ton and/or robotic; HYDRAULIC HOES EXCAVATORS: Hydraulic Backhoe Operator, wheel type (Ford, John Deere, Case type); Hydraulic Backhoe Operator track type up to and including 20,000 lbs.; LOADERS: Loaders, rubber-tired type, less than 25,000 lbs; Elevating Grader Operator, Tractor Towed requiring Operator or Grader; Elevating loader operator, Athey and similar types; OILERS: Service oiler (Greaser); PIPELINE-SEWER WATER: Hydra hammer or simialr types; Pavement Breaker Operator; PUMPS: Pump Operator, more than 5 (any

size); Pot Rammer Operator; RAILROAD EQUIPMENT: Locomotive Operator, under 40 tons; Ballast Regulator Operator; Ballast Tamper Multi-Purpose Operator; Track Liner Operator; Tie Spacer Operator; Shuttle Car Operator; Locomotive Operator, 40 tons and over; MATERIAL HAULRS: Cat wagon DJB's Volvo similar types; Conveyored material hauler; SURFACING (BASE) MATERIAL: Rock Spreaders, self-propelled; Pulva-mixer or similar types; Chiip Spreading machine operator; Lime spreading operator, construction job siter; SWEEPERS: Sweeper operator (Wayne type) self-propelled construction job site; TRACTOR-RUBBER TIRED: Tractor operator, rubber-tired, 50 hp flywheel and under; Trenching machine operator, maximum digging capacity 3 ft depth; TUNNEL: Dinkey

GROUP 6: ASPHALT: Plant Oiler; Plant Fireman; Pugmill Operator (any type); Truck mounted asphalt spreader, with screed; COMPRESSORS: Compressor Operator (any power), under 1,250 cu. ft. total capacity; CONCRETE: Plant Oiler, Assistant Conveyor Operator; Conveyor Operator; Mixer Box Operator (C. T. B., dry batch, etc.); Cement Hog Operator; Concrete Saw Operator; Concrete Curing Machine Operator (riding type); Wire Mat or Brooming Machine Operator; CRANE: Oiler; Fireman, all equipment; Truck Crane Oiler Driver; A-frame Truck Operator, single drum; Tugger or Coffin Type Hoist Operator; CRUSHER: Crusher Oiler; Crusher Feeder; CRUSHER: Crusher oiler; Crusher feeder; DRILLING: Drill Tender; Auger Oiler; FLOATING EQUIPMENT: Deckhand; Boatman; FORKLIFT: Self-propelled Scaffolding Operator, construction job site (excluding working platform); Fork Lift or Lumber Stacker Operator, construction job site; Ross Carrier Operator, construction job site; Lull Hi-Lift Operator or Similar Type; GUARDRAIL EQUIPMENT: Oiler; Auger Oiler; Oiler, combination guardrail machines; Guardrail Punch Oiler; HEATING PLANT: Temporary Heating Plant Operator; LOADERS: Bobcat, skid steer (less than 1 cu yd.); Bucket Elevator Loader Operator, BarberGreene and similar types; OILERS: Oiler; Guardrail Punch Oiler; Truck Crane Oiler-Driver; Auger Oiler; Grade Oiler, required to check grade; Grade Checker; Rigger; PIPELINE-SEWER WATER: Tar Pot Fireman; Tar Pot Fireman (power agitated); PUMPS: Pump Operator (any power); Hydrostatic Pump Operator; RAILROAD EQUIPMENT: Brakeman; Oiler; Switchman; Motorman; Ballast Jack Tamper Operator; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER, ETC. OPERATOR: Oiler, Grade Oiler (required to check grade); Grade Checker; Fireman; SWEEPER: Broom operator,

self propelled, construction job site; SURFACING (BASE) MATERIAL: Roller Operator, grading of base rock (not asphalt); Tamping Machine operator, mechanical, self-propelled; Hydrographic Seeder Machine Operator; TRENCHING MACHINE: Oiler; Grade Oiler; TUNNEL: Conveyor operator; Air filtration equipment operator

IRON0086A 07/01/2002		
	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
IRONWORKERS	26. 72	11. 80

IRON0086C 07/01/2002		
	Rates	Fringes
CALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC, PIERCE, SNOHOMISH AND THURSTON COUNTIES		
IRONWORKERS	27. 22	11. 80

LAB00001I 06/01/2002		
	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
LABORERS:		
ZONE 1:		
GROUP 1	14. 79	6. 20
GROUP 2	17. 11	6. 20
GROUP 3	18. 83	6. 20
GROUP 4	19. 31	6. 20
GROUP 5	19. 67	6. 20

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):

ZONE 2 - \$. 70

ZONE 3 - \$1. 00

BASE POINTS: CHELAN, SUNNYSIDE, WENATCHEE,
AND YAKIMA

ZONE 1 - Projects within 25 radius miles of the respective city hall
 ZONE 2 - More than 25 but less than 45 radius miles from the respective city hall
 ZONE 3 - More than 45 radius miles from the respective city hall

CALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (North of a straight line made by extending the north boundary of Wahkiakum County west to the Pacific Ocean), PIERCE, SNOHOMISH AND THURSTON COUNTIES

LABORERS:		
ZONE 1:		
GROUP 1	17. 71	6. 20
GROUP 2	20. 03	6. 20

GROUP 3	24. 71	6. 20
GROUP 4	25. 19	6. 20
GROUP 5	25. 55	6. 20

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):

ZONE 2 - \$. 70

ZONE 3 - \$1. 00

BASE POINTS: BELLINGHAM, MT. VERNON, EVERETT,
SEATTLE, KENT, TACOMA, OLYMPIA,
CENTRALIA, ABERDEEN, SHELTON, PT.
TOWNSEND, PT. ANGELES, AND BREMERTON

ZONE 1 - Projects within 25 radius miles of the respective city

hall

ZONE 2 - More than 25 but less than 45 radius miles from the
respective city hall

ZONE 3 - More than 45 radius miles from the respective city hall

LABORERS CLASSIFICATIONS

GROUP 1: Landscaping and Planting; Watchman; Window
Washer/Cleaner (detail clean-up, such as but not limited to
cleaning floors, ceilings, walls, windows, etc., prior to final
acceptance by the owner)

GROUP 2: Batch Weighman; Crusher Feeder; Fence Laborer;
Flagman; Pilot Car

GROUP 3: General Laborer; Air, Gas, or Electric Vibrating
Screed; Asbestos Abatement Laborer; Ballast Regulator Machine;
Brush Cutter; Brush Hog Feeder; Burner; Carpenter Tender; Cement
Finisher Tender; Change House or Dry Shack; Chipping Gun (under
30 lbs.); Choker Setter; Chuck Tender; Clean-up Laborer; Concrete
Form Stripper; Curing Laborer; Demolition (wrecking and moving
including charred material); Ditch Digger; Dump Person; Fine
Graders; Firewatch; Form Setter; Gabian Basket Builders; Grout
Machine Tender; Grinders; Guardrail Erector; Hazardous Waste
Worker (Level C); Maintenance Person; Material Yard Person; Pot
Tender; Rip Rap Person; Riggers; Scale Person; Sloper Sprayer;
Signal Person; Stock Piler; Stake Hopper; Toolroom Man (at job
site); Topper-Tailer; Track Laborer; Truck Spotter; Vinyl Seamer

GROUP 4: Cement Dumper-Paving; Chipping Gun (over 30 lbs.);
Clary Power Spreader; Concrete Dumper/Chute Operator; Concrete
Saw Operator; Drill Operator (hydraulic, diamond, airtrac);
Faller and Bucker Chain Saw; Grade Checker and Transit Person;
Groutmen (pressure) including post tension beams; Hazardous Waste
Worker (Level B); High Scaler; Jackhammer; Laserbeam Operator;
Manhole Builder-Midman; Mortarman and Hodcarrier; Nozzlemán
(concrete pump, green cutter when using combination of high
pressure air and water on concrete and rock, sandblast, gunite,
shotcrete, water blaster, vacuum blaster); Pavement Breaker; Pipe
Layer and Caulker; Pipe Pot Tender; Pipe Reliner (not insert
type); Pipe Wrapper; Power Jacks; Railroad Spike Puller-Power;
Raker-Asphalt; Rivet Buster; Rodder; Sloper (over 20'); Spreader
(concrete); Tamper and Similar electric, air and glas operated

tool; Timber Person-sewer (lagger shorer and cribber);
Track Liner Power; Tugger Operator; Vibrator; Well Point Laborer

GROUP 5: Caisson Worker; Miner; Powderman; Re-Timberman;
Hazardous Waste Worker (Level A).

LAB00238I 06/01/2002
Rates Fringes
CHELAN COUNTY
HOD CARRIERS 21.55 5.50

LAB00335C 06/01/2002
Rates Fringes
PACIFIC (South of a straight line made by extending the north
Boundary line of Wahkiakum County west to the Pacific Ocean)
COUNTY

ZONE 1:

LABORERS:

GROUP 1	23.43	6.15
GROUP 2	23.94	6.15
GROUP 3	24.33	6.15
GROUP 4	24.66	6.15
GROUP 5	21.26	6.15
GROUP 6	19.16	6.15
GROUP 7	16.40	6.15

LABORERS CLASSIFICATIONS

GROUP 1: Asphalt Plant Laborers; Asphalt Spreaders;
Batch Weighman; Broomers; Brush Burners and Cutters; Car and
Truck Loaders; Carpenter Tender; Change-House Man or Dry Shack
Man; Choker Setter; Clean-up Laborers; Curing-concrete;
Demolition, Wrecking, and Moving Laborers; Dumpers,
road oiling crew; Dumpmen (for grading crew); Elevator Feeders;
Guard Rail, Median Rail, Reference Post, Guide Post, Right-of-way
Marker; Fine Graders; Fire Watch; Form Strippers (not swinging
stages); General Laborers; Hazardous Waste Worker; Leverman or
Aggregate Spreader (Flaherty and similar types); Loading
Spotters; Material Yard Man (including electrical); Pittsburgh
Chipper Operator or similar types; Railroad Track Laborers;
Ribbon Setters (including steel forms); Rip Rap Man (hand
placed); Road Pump Tender; Sewer Laborer; Signalman; Skipman;
Slopers; Spraymen; Stake Chaser; Stockpiler; Tie Back Shoring;
Timber Faller and Bucker (hand labor); Toolroom Man (at job
site); Tunnel Bullgang (above ground); Weight-Man-Crusher
(aggregate when used)

GROUP 2: Applicator (including pot power tender for same),
applying protective material by hand or nozzle on utility lines
or storage tanks on project; Brush (power saw); Burners;
Choker Splicer; Clary Power Spreader and similar types;
Clean up-nozzleman-Green cutter (concrete, rock, etc.); Concrete

Laborer; Concrete Power Buggyman; Crusher Feeder; Demolition and Wrecking Charred Materials; Guniting Nozzlemans Tender; Guniting or Sand Blasting Pot Tender; Handlers or Mixers of all Materials of an irritating nature (including cement and lime); Pipe Doping & Wrapping; Tool Operators (includes but not limited to: Dry pack machine, Jackhammer, Chipping guns, Paving breakers); Post Hole Digger, air, gas or electric; Vibrating Screed; Tampers; Sand Blasting (wet); Stake-Setter; Tunnel-Muckers, Brakemen, Concrete Crew, Bull gang (Underground)

GROUP 3: Asbestos Removal (structural removal only); Bit Grinder; Drill Doctor; Drill Operators, air tracks cat drills, wagon drills, rubber-mounted drills, and other similar types;

Concrete Saw Operator; Guniting Nozzlemans; High scalers, strippers and drillers (covers work in swinging stages, chairs or belts, under extreme conditions unusual to normal drilling, blasting, barring-down, or sloping and stripping); Manhole Builder; Powdermen; Power Saw Operators (Bucking and Falling); Pumpcrete Nozzlemans; Sand Blasting (dry); Sewer Timberman; Track Liners; Anchor Machines; Ballast Regulators; Multiple Tampers; Power Jacks; Tugger Operator; Tunnel-Chuck Tenders, Nippers and Timbermen; Vibrator; Water Blaster

GROUP 4: Asphalt Raker; Concrete Saw Operator (walls); Concrete Nozzlemans; Grade Checker; Pipelayer; Laser Beam (Tunnel) applicable when assigned to move, set up, align laser beam; Miner-Tunnel; Motorman-dinky Locomotive-Tunnel; Powderman-Tunnel; Shield Operator-Tunnel

GROUP 5: Traffic Flaggers

GROUP 6: Fence Builders

GROUP 7: Landscaping and Planting Laborers

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):

ZONE 2 - \$0.65
ZONE 3 - 1.15
ZONE 4 - 1.70
ZONE 5 - 2.75

ZONE DEFINITIONS

BASE POINTS: GOLDENDALE, LONGVIEW, AND VANCOUVER

ZONE 1: Projects within 30 miles of the respective city hall
ZONE 2: More than 30 miles but less than 40 miles from the respective city hall.
ZONE 3: More than 40 miles but less than 50 miles from the respective city hall.
ZONE 4: More than 50 miles but less than 80 miles from the respective city hall.
ZONE 5: More than 80 miles from the respective city hall.

LAB00335K 06/01/2002

PACIFIC(south of a straight line made by extending the north
boundary of Wahkiakum County west to the Pacific Ocean)

	Rates	Fringes
HOD CARRIERS	25.04	6.15

PAIN0005A 07/01/2002

CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS,
MASON, PIERCE, SNOHOMISH AND THURSTON COUNTIES

	Rates	Fringes
PAINTERS	23.27	5.36

PAIN0005C 06/10/2002

CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON,
PIERCE, SNOHOMISH AND THURSTON COUNTIES

	Rates	Fringes
DRYWALL FINSIHERS	26.18	10.46

PAIN0005H 07/01/2002

CHELAN AND KITTITAS COUNTIES

PAINTERS:

BRUSH, PAPERHANGER,
STEAM-CLEANING, STRIPING and
SPRAY

	Rates	Fringes
BRUSH, PAPERHANGER, STEAM-CLEANING, STRIPING and SPRAY	18.97	5.32

TV, RADIO, ELECTRICAL
TRANSMISSION TOWERS

TV, RADIO, ELECTRICAL TRANSMISSION TOWERS	20.72	5.32
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PAIN0005P 06/01/2002

CALLAM, GRAYS HARBOR, JEFFERSON, LEWIS, MASON, PACIFIC (NORTHERN
PORTION), PIERCE AND THURSTON COUNTIES

	Rates	Fringes
SOFT FLOOR LAYERS	21.47	7.92

PAIN0054G 09/01/2002

CHELAN AND KITTITAS COUNTIES

	Rates	Fringes
GLAZIERS	18.32	3.17

PAIN0054I 06/01/2002

CHELAN AND KITTITAS COUNTIES

	Rates	Fringes
DRYWALL FINISHER (TAPER)	20.88	5.16

PAIN0055M 07/15/2002		
	Rates	Fringes
PACIFIC COUNTY		
DRYWALL FINISHERS	26. 11	9. 12

PAIN0055N 07/01/2002		
	Rates	Fringes
PACIFIC COUNTY		
PAINTERS:		
Brush & Roller	17. 35	5. 08
Spray and Sandblasting	17. 95	5. 08
High work - All work		
60 ft. or higher	18. 10	5. 08

PAIN0188A 01/01/2003		
	Rates	Fringes
CLALLAM, JEFFERSON, KING, KITSAP, LEWIS, MASON, PIERCE, SNOHOMISH AND THURSTON COUNTIES		
GLAZIERS	28. 35	9. 11

PAIN0188B 01/01/2003		
	Rates	Fringes
GRAYS HARBOR AND PACIFIC COUNTIES		
GLAZIERS	12. 95	7. 07

PAIN1238D 06/01/2002		
	Rates	Fringes
KING, KITSAP AND SNOHOMISH COUNTIES		
SOFT FLOOR LAYERS	22. 64	7. 94

PLAS0072C 06/01/2002		
	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
Zone 1:		
CEMENT MASONS	21. 51	5. 98

Zone Differential (Add to Zone 1 rates): Zone 2 - \$2. 00

BASE POINTS: Spokane, Pasco, Moses Lake, and Lewiston

Zone 1: 0 - 45 radius miles from the main post office

Zone 2: 45 radius miles from the main post office

PLAS0082D 06/01/2002

	Rates	Fringes
PACIFIC (South of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean) COUNTY		
PLASTERERS	25. 64	7. 13

PLAS0528B 12/01/2002

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (North of a straight line made by extending the north boundary line of Wahkiakum Count, west to the Pacific Ocean), PIERCE, SNOHOMISH AND THURSTON COUNTIES		
CEMENT MASONS	28. 05	9. 84

PLUM0032A 06/01/2002

	Rates	Fringes
CHELAN AND KITTITAS (NORTHERN TIP) COUNTIES		
PLUMBERS AND PIPEFITTERS	26. 13	10. 23

PLUM0032B 01/01/2003

	Rates	Fringes
CLALLAM, KING AND JEFFERSON COUNTIES		
PLUMBERS AND PIPEFITTERS	34. 18	12. 68

PLUM0082D 08/01/2002

	Rates	Fringes
GRAYS HARBOR, LEWIS, MASON (EXCLUDING NE SECTION), PACIFIC, PIERCE AND THURSTON COUNTIES		
PLUMBERS AND PIPEFITTERS	29. 60	11. 62

PLUM0265A 08/01/2002

	Rates	Fringes
SNOHOMISH COUNTY		
PLUMBERS AND PIPEFITTERS:	29. 00	11. 62

PLUM0598B 06/01/2002

	Rates	Fringes
KITTITAS (ALL BUT NORTHERN TIP)		

PLUMBERS AND PIPEFITTERS	29. 85	12. 59

PLUM0631A 08/01/2002		
	Rates	Fringes
MASON (NE SECTION), AND KITSAP COUNTIES		
PLUMBERS/PIPEFITTERS: All new construction, additions, and remodeling of commercial building projects such as: cocktail lounges and taverns, professional buildings, medical clinics, retail stores, hotels and motels, restaurants and fast food types, gasoline service stations, and car washes where the plumbing and mechanical cost of the project is less than \$100, 000	19. 20	4. 58
All other work where the plumbing and mechanical cost of the project is \$100, 000 and over	27. 84	11. 62

R00F0054A 06/01/2002		
	Rates	Fringes
CLALLAM, JEFFERSON, KING, KITSAP, MASON AND SNOHOMISH COUNTIES		
ROOFERS	25. 37	8. 41

R00F0153A 01/01/2003		
	Rates	Fringes
GRAYS HARBOR, LEWIS, PACIFIC, PIERCE AND THURSTON COUNTIES		
ROOFERS	25. 25	6. 69

R00F0189A 07/01/2002		
	Rates	Fringes
CHELAN COUNTY		
ROOFERS	20. 15	6. 15

R00F0189E 07/01/2002		
	Rates	Fringes
KITTITAS COUNTY		
ROOFERS	20. 47	5. 90

SFWA0699B 07/01/2002

	Rates	Fringes
KING, KITSAP, PIERCE, SNOHOMISH AND THURSTON COUNTIES		

SPRINKLER FITTERS	33.04	11.25
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SHEE0066D 06/01/2002

	Rates	Fringes
CHELAN COUNTY		

SHEET METAL WORKERS	24.04	7.93
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SHEE0066F 12/01/2002

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC, PIERCE, SNOHOMISH AND THURSTON COUNTIES		

SHEET METAL WORKERS	30.90	11.75
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SHEE0066M 06/01/2002

	Rates	Fringes
KITTTITAS COUNTY		

SHEET METAL WORKERS	25.88	9.90
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TEAM0174B 06/01/2002

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (North of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean), PIERCE, SNOHOMISH AND THURSTON COUNTIES		

TRUCK DRIVERS:

ZONE A:

GROUP 1:	25.79	9.68
GROUP 2:	25.21	9.68
GROUP 3:	22.81	9.68
GROUP 4:	18.56	9.68
GROUP 5:	25.55	9.68

ZONE B (25-45 miles from center of listed cities*):

Add \$.70 per hour to Zone A rates.

ZONE C (over 45 miles from center of listed cities*):

Add \$1.00 per hour to Zone A rates.

*Zone pay will be calculated from the city center of the following listed cities:

BELLINGHAM	CENTRALIA	RAYMOND	OLYMPIA
EVERETT	SHELTON	ANACORTES	BELLEVUE
SEATTLE	PORT ANGELES	MT. VERNON	KENT
TACOMA	PORT TOWNSEND	ABERDEEN	BREMERTON

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 - "A-frame or Hydralift" trucks and Boom trucks or similar equipment when "A" frame or "Hydralift" and Boom truck or similar equipment is used; Buggymobile; Bulk Cement Tanker; Dumpsters and similar equipment, Tournorockers, Tournowagon, Tournotrailer, Cat DW series, Terra Cobra, Le Tourneau, Westinghouse, Athye Wagon, Euclid Two and Four-Wheeled power tractor with trailer and similar top-loaded equipment transporting material: Dump Trucks, side, end and bottom dump, including semi-trucks and trains or combinations thereof with

16 yards to 30 yards capacity: Over 30 yards \$.15 per hour additional for each 10 yard increment; Explosive Truck (field mix) and similar equipment; Hyster Operators (handling bulk loose aggregates); Lowbed and Heavy Duty Trailer; Road Oil Distributor Driver; Spreader, Flaherty Transit mix used exclusively in heavy construction; Water Wagon and Tank Truck-3,000 gallons and over capacity

GROUP 2 - Bulllifts, or similar equipment used in loading or unloading trucks, transporting materials on job site; Dumpsters, and similar equipment, Tournorockers, Tournowagon, Turnotrailer, Cat. D.W. Series, Terra Cobra, Le Tourneau, Westinghouse, Athye wagon, Euclid two and four-wheeled power tractor with trailer and similar top-loaded equipment transporting material, Dump trucks, side, end and bottom dump, including semi-trucks and trains or combinations thereof with less than 16 yards capacity; Flatbed: (Dual Rear Axle); Grease Truck, Fuel Truck, Greaser, Battery Service Man and/or Tire Service Man; Leverman and loader at bunkers and batch plants; Oil tank transport; Scissor, Slurry Truck; Sno-Go and similar equipment; Swampers; Straddler Carrier (Ross, Hyster) and similar equipment; Team Driver; Tractor (small rubber-tired (when used within Teamster jurisdiction); Vacuum truck; Water Wagon and Tank trucks-less than 3,000 gallons capacity; Winch truck; Wrecker, tow truck and similar equipment

GROUP 3 - Flatbed: single rear axle; Pickup sweeper, Pickup Truck (Adjust upward by \$2.00 per hour for onsite work)

GROUP 4 - Escort or pilot driver

GROUP 5 - Mechanic

HAZMAT PROJECTS

Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:

LEVEL C: +\$.25 per hour - This level uses an air purifying respirator or additional protective clothing.

LEVEL B: +\$.50 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit."

LEVEL A: +\$.75 per hour - This level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

TEAM0760F 06/01/2002

	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		

(ANYONE WORKING ON HAZMAT
JOBS SEE FOOTNOTE A BELOW)

TRUCK DRIVERS:

GROUP 1	19.33	8.50
GROUP 2	21.97	8.50
GROUP 3	22.08	8.50
GROUP 4	22.41	8.50
GROUP 5	22.52	8.50
GROUP 6	22.68	8.50
GROUP 7	23.22	8.50
GROUP 8	23.54	8.50

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Escort Driver or Pilot Car; Employee Haul; Power Boat Hauling Employees or Material

GROUP 2: Fish Truck; Flat Bed Truck; Fork Lift (3000 lbs. and under); Trailer Mounted Hydro Seeder and Mulcher; Leverperson (loading trucks at bunkers); Seeder & Mulcher; Stationary Fuel Operator; Tractor (small, rubber-tired, pulling trailer or similar equipment)

GROUP 3: Auto Crane (2000 lbs. capacity); Buggy Mobile & Similar; Bulk Cement Tanks & Spreader; Dumptr (6 yds. & under); Flat Bed Truck with Hydraulic System; Fork Lift (3001-16,000 lbs.); Fuel Truck Driver; Steamcleaner & Washer; Power Operated Sweeper; Rubber-tired Tunnel Jumbo; Scissors Truck; Slurry Truck Driver; Straddle Carrier (Ross, Hyster, & similar); Tireperson; Transit Mixers & Truck Hauling Concrete (3 yd. to & including 6 yds.); Trucks, side, end, bottom and articulated end dump (3 yards to and including 6 yds.); Warehouseperson (to include shipping & receiving); Wrecker & Tow Truck

GROUP 4: A-Frame; Burner, Cutter, & Welder; Service Greaser; Trucks, side, end, bottom and articulated end dump (over 6 yds. to & including 12 yds.); Truck Mounted Hydro Seeder; Warehouseperson; Water Tank truck (0-8000 gallons)

GROUP 5: Dumpster (over 6 yds.); Lowboy (50 tons & under); Self-Loading Roll Off; Semi-Truck & Trailer; Tractor with Steer Trailer; Transit Mixers and Trucks Hauling Concrete (over 6 yds. to and including 10 yds.); Trucks, side, end, bottom and articulated end dump (over 12 yds. to & including 20 yds.); Truck-Mounted Crane (with load bearing surface either mounted or pulled) (up to 14 ton); Vacuum Truck (super sucker, guzzler, etc.)

GROUP 6: Flaherty Spreader Box Driver; Flowboys; Fork Lift (over 16,000 lbs.); Dumps (Semi-end); Lowboy (over 50 tons); Mechanic (Field); Transfer Truck and Trailer; Transit Mixers &

Trucks Hauling Concrete (over 10 yds. to & including 20 yds.); Trucks, side, end, bottom and end dump (over 20 yds. to & including 40 yds.); Truck and Pup; Tournarocker, DW's & similar with 2 or more 4 wheel-power tractor with trailer, gallonage or yardage scale, whichever is greater; Water Tank Truck (8,001-14,000 gallons)

GROUP 7: Oil Distributor Driver; Stringer Truck (cable operated trailer); Transit Mixers & Hauling Concrete (over 20 yds.);

Truck, side, end, bottom and articulated end dump (over 40 yds. to & including 100 yds.); Truck Mounted Crane (with load bearing surface either mounted or pulled (16 through 25 tons)

GROUP 8: Prime Movers and Stinger Truck; Trucks, side, end, bottom and articulated end dump (over 100 yds.); Helicopter Pilot Hauling Employees or Materials

Footnote A- Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:

LEVEL D: - \$.25 PER HOUR (This is the lowest level of protection. No respirator is used and skin protection is minimal.

LEVEL C: - \$.50 PER HOUR (This level uses an air purifying respirator or additional protective clothing.

LEVEL B: - \$.75 PER HOUR (Uses same respirator protection as

Level A. Supplied air line is provided in conjunction with a chemical "splash suit."

LEVEL A: - \$1.00 PER HOUR (this level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
=====

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a

- position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests

for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.
END OF GENERAL DECISION

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WAIS Document Retrieval
GENERAL DECISION WA030014 06/13/2003 WA14

Date: June 13, 2003
General Decision Number WA030014

Superseded General Decision No. WA020014

State: Washington

Construction Type:
RESIDENTIAL

County(ies):
PIERCE

RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories)

Modification Number	Publication Date
0	06/13/2003

COUNTY(ies):
PIERCE

SUWA4002A 04/01/1982

	Rates	Fringes
CARPENTERS	13. 79	2. 66
CEMENT MASONS	12. 89	
ELECTRICIANS	13. 38	
LABORERS	7. 71	
PAINTERS	10. 53	1. 34
PLUMBERS	11. 24	
ROOFERS	15. 13	2. 42

WELDERS: Receive rate for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses

(29 CFR 5.5(a)(1)(ii)).

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00100	INSTRUCTIONS, CONDITIONS AND NOTICES TO BIDDERS/OFFERORS
00600	REPRESENTATIONS AND CERTIFICATIONS
00700	CONTRACT CLAUSES
00800	SPECIAL CONTRACT REQUIREMENTS
00810	DESIGN-BUILD CONTRACT PROCEDURES
00860	STATEMENT OF WORK
	ATTACHMENTS TO THE STATEMENT OF WORK
1	DRAWINGS – SITE PLANS AND VICINITY MAPS
2	DRAWINGS – UEPH AND SOLDIER COMMUNITY BUILDING
3	DRAWINGS – LARGE COMPANY OPERATIONS FACILITY
4	DRAWINGS – LARGE BATTALION HEADQUARTERS BUILDING
5	DRAWINGS – LAWNMOWER STORAGE BUILDING
6	PROPOSAL DRAWING FORMAT
7	SIGNAGE – FACILITY, CONSTRUCTION AND SAFETY SIGNS
8	GEOTECHNICAL REPORT
9	FORT LEWIS INSTALLATION DESIGN GUIDE
10	PROGRESSIVE COLLAPSE ANALYSIS GUIDELINES
11	LIST OF DRAWINGS
12	FORCE PROTECTION CRITERIA
13	UNIFIED FACILITIES CRITERIA (UFC) DESIGN: GENERAL BUILDING REQUIREMENTS
14	LIST OF PROHIBITED AND ACCEPTABLE PLANTS
00890	TECHNICAL SPECIFICATIONS
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01320	PROJECT SCHEDULE
01330	SUBMITTAL PROCEDURES
01410	ENVIRONMENTAL PROTECTION
01415	METRIC MEASUREMENTS
01451	CONTRACTOR QUALITY CONTROL
01452	SPECIAL INSPECTION FOR SEISMIC-RESISTING SYSTEMS
01501	CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS
01572	CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT
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01701	OPERATIONS AND MAINTENANCE MANUALS
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01703	WARRANTY OF CONSTRUCTION
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SECTION 00810
DESIGN-BUILD CONTRACT PROCEDURES

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SECTION 00810

DESIGN-BUILD CONTRACT PROCEDURES

1.00 GENERAL CONTRACT PROCEDURES.

a. Fast Tracking.

The contract will be conducted in multiple parts to facilitate the Contractor's use of "fast tracking" in the preparation of project design documents and construction of the Barracks Complex facilities. Consistent with fast-track design-construction, the contractor shall submit a 65% Site/Utility Design as the first design submittal. It is the intention of this subdivision of the work to permit a more flexible sequence of work and a reduction of schedule interdependence between the various building designs.

The Contractor shall submit design documents to the Government in accordance with the Design Submittal Schedule provided herein. No on-site construction activities shall begin prior to receipt of a construction Notice to Proceed NTP by the contractor. Construction shall not commence until the Government has reviewed and accepted the applicable design documents for that part of the construction. Government direction to proceed with construction of a specific part of the work will be conveyed through issuance of an interim NTP. The Contractor may propose sequencing of the work that varies from the Design Submittal Schedule provided, however acceptance is at the option of the Government.

Following review, resolution, and incorporation of all Government comments, and submittal of a satisfactory set of site/utility design documents, the Seattle District, Corps of Engineers shall issue an interim (NTP) which shall allow the contractor to proceed with site development activities within the parameters set forth in the accepted design submittal.

b. Contract Parts.

- (1) Site, Site Utilities, Building Foundations and All Other Work¹.
- (2) Barrack and Lawnmower Storage Buildings²
- (3) Large Company Operations Facilities² (3 required)
- (4) Large Battalion Headquarters Buildings² (2 required, including 1 general administration variant)
- (5) Landmark Feature (Optional Item)

NOTES:

¹ "All other work" does not include building design information other than foundations.

² Part 2, 3 and 4 building design information shall include all work inside the zone extending 1500 mm from building foundations and any other site information (such as pavements or landscape features) that are related to the buildings.

c. Government Review

(1) Contract Conformance

Government review of the Contractor's design will be strictly limited to review against the contract requirements and does not constitute approval or acceptance of any variations from the RFP or from the Contractor's proposal unless such variations have been specifically pointed out by the Contractor in writing and authorized in writing by the Government. The responsibility for a total design in accordance with the contract will remain with the Contractor and any interim Notice To Proceed (NTP) will in no way mitigate against that responsibility.

(2) Items of Government Approval

All color boards, material samples and documentation submitted as part of the Building Related Interior Design (BRID) and/or Furniture Related Interior Design (FRID) shall be submitted for review and approval by the Government. Interior colors and finish materials are not specifically described in this RFP and wide latitude is granted the offeror. However, the Government reserves the right to require adjustments to interior design submittals. Offeror's shall assume two resubmittals of BRID and FRID products.

(3) Limitation of Design Revisions

The design, after final review has been conducted, in addition to the items which constitute the formal contract (RFP and any other specific items identified on the SF 1442, Solicitation, Offer, and Award document), will be used by all parties involved in construction and in administration of the contract. Therefore, it is imperative that the design documents be kept up to date and an effective system of making and distributing changes be implemented. Since changes to the design increase risk of construction errors and deplete available administrative resources, every effort shall be made to minimize revisions to the accepted design. One of the measures of the Contractor's effectiveness of management and design, which will be a factor in the final performance evaluation of the Contractor, will be how well the goal of minimizing changes to the accepted design is met. The use of effective quality control during design, and utilization of experienced and capable designers are some of the means that are expected to be used to accomplish this goal.

(4) Design Revision Procedures

a. Government review of the Contractor's design will be strictly limited to review against the contract requirements and does not constitute approval or acceptance of any variations from the RFP or from the Contractor's proposal unless such variations have been specifically pointed out by the Contractor in writing and authorized in writing by the Government. The responsibility for a total design in accordance with the contract will remain with the Contractor and any interim Notice To Proceed (NTP) will in no way mitigate against that responsibility.

b. The design, after final review has been conducted, in addition to the items which constitute the formal contract (RFP and any other specific items identified on the SF 1442, Solicitation, Offer, and Award document), will be used by all parties involved in construction and in administration of the contract. Therefore, it is imperative that the design documents be kept up to date and an effective system of making and distributing changes be implemented. Since changes to the design increase risk of construction errors and deplete available administrative resources, every effort shall be made to minimize revisions to the accepted design. One of the

measures of the Contractor's effectiveness of management and design, which will be a factor in the final performance evaluation of the Contractor, will be how well the goal of minimizing changes to the accepted design is met. The use of effective quality control during design, and utilization of experienced and capable designers are some of the means that are expected to be used to accomplish this goal.

c. If revisions to the reviewed and accepted design become necessary, the procedures described in Section 01330 SUBMITTALS will be used to accomplish the revisions. The revisions will be considered a "Variation" and shall be submitted as a "GA" submittal. All the requirements in paragraph: "Variations" in Section 01330 SUBMITTALS will apply to revisions to the accepted design. All design analysis and calculations necessary to establish that the proposed revision satisfies applicable design requirements shall be included in the submittal. All such submittals must be accompanied by a letter signed by the Architect of Record, which clearly describes the changes to be made to design drawings and/or specifications and the reasons for the revisions. The submittal shall state whether the requested change will require a modification to the contract or is a revision to the design that does not require a contract modification. All revisions accepted by the Government shall be reflected in the as-built drawings and/or specifications at no change in time or cost to the contract. Drawings and specifications are to be kept current throughout all stages of construction with accepted revisions.

(5) Contractor Quality Control Plan

The Contractor's Quality Control Plan for both the design and construction will be reviewed and discussed at the Pre-Design and Pre-Construction Conferences (see paragraphs 2.00 and 4.00 (b) below) prior to the start of each contract part. The technical specifications Division 1, Section 01451 Contractor Quality Control, provide details concerning the Contractors Quality Control Plan.

2.00 PRE-DESIGN CONFERENCE.

Within ten working days after the initial notice to proceed with the contract a conference will be held to acquaint the Contractor with the general plan of contract administration and requirements under which the design and construction is to proceed.

3.00 DESIGN REQUIREMENTS

a. Design Submittals.

Within 30 days after Notice to Proceed, the Contractor shall submit, for approval, a complete design schedule, based on guidance provided in this section, with all submittals and review times indicated in calendar dates. The Contractor shall update this schedule monthly. No design submittals will be reviewed or evaluated until after receipt and approval of the proposed design/review schedule. The Contractor shall prepare and distribute project design documents using the guidance provided and the approved schedule. Each submittal shall be in accordance with the requirements of the contract documents and all other terms and conditions of the contract. Except for color boards, and BRID/FRID the Government will consider the Contractor's design documents as being submitted for information only. However, the Government reserves the right to raise any design and construction issues, that may not comply with the RFP and/or the Contractor's final technical proposal, with the Contractor and demand

correction, at any time up to acceptance of the facility. Payment will not be made for work that does not conform to the requirements of the contract.

b. Design Reviews.

(1) Government Review

After receipt of submitted materials, the Government will be allowed twenty-one (21) working days to review and comment on each design submittal. For each design review submittal, the COR will furnish, to the Contractor, a single consolidated listing (utilizing the "Dr. Checks" system) of all comments from the various design sections and from other concerned agencies involved in the review process. The Government's review will be for conformance with the technical requirements of the solicitation and the Successful Offeror's (Contractor's) RFP proposal. If a design submittal is over one (1) day late in accordance with the latest design schedule, the Government review period will be extended 7 days. Revisions to submittal dates must be made in writing at least one (1) week prior to the effect submittal.

(2) Contractor Response

The Contractor is required to respond to all review comments and submit the annotated comments in the subsequent revised design submittal. All comments must both be accepted and incorporated into the design or rebutted to the Government's written satisfaction. The Contractor's responses will specifically describe/address/detail "How and Where" in the design the comments have been/will be incorporated. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after receipt of these comments in order that the comment can be resolved. The Contractor shall furnish disposition of all comments, in writing, with the next scheduled submittal. The Contractor is cautioned that if it believes the action required by any comment exceeds the requirements of this contract, that it should take no action and notify the COR in writing immediately.

(3) Incomplete Contractor Submissions and Comment Responses

Design and/or Back Check submissions found to be incomplete or not in compliance with the contract will be returned to the Contractor for correction and re-submission. Under such circumstances the Government will have an additional 21 working days review period, to commence upon receipt of the revised submittals, and there will be no increase in the contract completion date provided. Contract completion time (see contract clause entitled "Commencement, Prosecution, and Completion of Work") includes time for Government review of Contractor prepared project design documents. If final or final backcheck submittal(s) are incomplete or deficient, and require correction by the Contractor and resubmittal for review, the cost of rehandling and reviewing will be deducted from payment due the Contractor at the rate of \$ 5,000.00 per submittal.

(4) Review Conferences

When the Contractor has responded to all Government review comments in DrChecks, the Government may convene a design review conference. Every effort will be made to complete these conferences in one day. However, given the number of facilities under design and the unknown number of unresolved comments, a one day conference is not guaranteed. Review

conferences will be held for each design submittal at Fort Lewis. The Contractor shall bring the personnel that developed the design submittal to the review conference. These conferences will take place the week after the receipt of the comment responses by the Contractor or as mutually agreed.

(5) Post Review Conference Actions

Copies of comments, annotated with comment action agreed on, will be made available to all parties before the conference adjourns. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Valid comments will be incorporated. After receipt of final corrected design documents upon incorporation of backcheck comments the Seattle District Corps of Engineers will recommend issuance of a Construction Notice to Proceed (NTP). The Government, however, reserves the right to disapprove design document submittals if comments are significant.

(6) Variations

Government review does not constitute approval or acceptance of any variations from the RFP or from the Contractor's proposal unless such variations have been specifically pointed out by the Contractor in writing and authorized in writing by the Government. The responsibility for a total design in accordance with the contract will remain with the Contractor and any interim NOTICE TO PROCEED with construction will in no way mitigate against or reduce that responsibility.

(7) DrChecks System

The Government will utilize the DrChecks web based software system for entering review comments. Following the Government review period, the Contractor shall respond to Government comments using DrChecks. The Contractor shall utilize Corps of Engineers DrChecks software for annotating and managing review comments. DrChecks is a Web-based system accessible via the Internet through the Corps of Engineers Seattle District home page. Access the COE site at <http://www.nws.usace.army.mil/> and click the "DrChecks" button. Minimum platform requirements for using DrChecks are a Pentium PC with Windows 95 (or above), Microsoft Internet Explorer 4.0 (or above) or Netscape Navigator (or above), and the capability to send Internet email. The Contractor shall provide this software platform for its staff requiring access to annotate or manage comments.

c. Project Design Documents.

After the Contractor's revised final submittal of the design documents have been back checked and accepted by the Government, corrected signed and sealed contract drawings in electronic file formats indicated below, along with complete sets of half size prints taken from the disk, and corrected specifications in electronic file format shall be submitted to the personnel listed on the Specification and Drawing Distribution List. The documents shall be submitted on ISO 9660 format CD-ROM.

The Contractor shall also provide the following paper copies in the number listed to the Government:

- (1) Full size drawings
- (2) Half size drawings
- (3) Specifications.

Quantity and distribution of these documents shall be as shown on the "Specification and Drawing Distribution List", or as directed by the Government at the design review conference.

Electronic Formats:

- Complete set of contract drawings in "CALS" format, along with the index.txt file and .svd file.
- Complete set of contract drawings in AutoCAD (.dwg) format version 14 or later.
- Complete set of contract drawings in Microstation (.dgn) format, version J or later.
- Complete set of all specifications in "SpecsIntact" format. Information on "SpecsIntact" is available at the following web site: <http://si.ksc.nasa.gov/specsintact>. "SpecsIntact" is available for free download. Use version SI 4.0 or later.

If at any time after the stamped and sealed drawings for construction and/or specifications have been issued, the Contractor finds that revisions are required, he shall forward revisions in the same number of copies to the same addresses as indicated for the final submittal. All such revisions shall be accompanied by a cover letter from the Architect of Record explaining the revision being made and the reason for that revision.

d. Draft Form 1354 Checklist.

An initial Form 1354 Checklist shall be prepared and submitted with the Project Design Documents identified above. The Form 1354 Checklist and the instructions for completion are provided in specification Section 01704. This initial submittal will be considered a draft Form 1354 Checklist. The Contractor shall update and submit the form during construction in accordance with the instructions provided in Section 01704.

e. Mailing of Design Submittals.

Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Government has furnished the Contractor herein with addresses where each copy shall be mailed. Confirm addresses with the CO after award of the contract.

Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

f. Project Coordination.

(1) Written Records.

The Contractor shall prepare a written record of each design site visit, meeting, or conference, either telephonic or personal, and furnish within five (5) working days copies to the Contracting Officer and all parties involved. The written record shall include subject, names of participants, outline of discussion, and recommendation or conclusions. Number each written record for the particular project under design in consecutive order.

(2) Design Needs List.

Throughout the life of the contract, the Contractor shall furnish the COR a monthly "needs" list for design related items. This list shall itemize in an orderly fashion design data required by the Contractor to advance the design in a timely manner. Each list shall include a sequence number, description of action item, name of the individual or agency responsible for satisfying the action item and remarks. The list will be maintained on a continuous basis with satisfied action items checked off and new action items added as required. Once a request for information is initiated, that item shall remain on the list until the requested information has been furnished or otherwise resolved. Copies of the list will be mailed to both the Administrative Contracting Officer and the agencies tasked with supplying the information.

DESIGN SUBMITTAL SCHEDULE

<u>Submittal</u>	<u>Suspense</u>	<u>Submittal Items</u>
Site, Utilities and Building Foundations and All Other Work (developed to 65%).	See Note 6	See Specifications & Drawings Distribution See Note 4
Site, Utilities and Building Foundations and All Other Work (developed to 95%).	See Note 1	See Specifications & Drawings Distribution See Note 4
All Building Designs and New Landmark Feature (developed to 65%).	See Note 1	See Specifications & Drawings Distribution See Note 4
Revised Site, Utilities and Foundations and All Other Work (developed to 100%)	See Note 2	See Specifications & Drawings Distribution See Note 4
Barrack/SCB/LMS Buildings (developed to 95%)	See Note 3	See Specifications & Drawings Distribution See Note 4
New Landmark Feature (developed to 95%)	See Note 3	See Specifications & Drawings Distribution See Note 4
Large Company Operations Facilities - (developed to 95%)	See Note 3	See Specifications & Drawings Distribution See Note 4
Large Battalion HQ Buildings - (developed to 95%)	See Note 3	See Specifications & Drawings Distribution See Note 4
Final Backcheck Submittals:		
Revised Barrack/SCB Design (developed to 100%) and associated Site, Utilities and Foundation Design documents.	See Note 2	See Specifications & Drawings Distribution See Note 4
Revised Large Company Operations Facility Design (developed to 100%) and associated Site, Utilities and Foundation Design documents	See Note 2	See Specifications & Drawings Distribution See Note 4
Revised Large Battalion HQ Design (developed to 100%) and associated Site, Utilities and Foundation Design documents.	See Note 2	See Specifications & Drawings Distribution See Note 4

New landmark Feature (developed to 100%)

See Note 2

See Specifications &
Drawings Distribution
See Note 4

NOTES: The Contractor shall complete suspense in the above schedule. Suspense is to be measured as the number of Calendar Days after Notice to Proceed (NTP) with the Contract.

1. The number of calendar days for completion shall be no more than 90 calendar days after NTP with the contract.
2. The number of calendar days for completion of the revised submittal shall include Government review time as specified in paragraph Design Reviews herein and time for the Contractor to complete required corrections and shall be no later than 14 calendar days after Contractor receipt of the Government review comments.
3. The number of calendar days for completion shall be no more than 180 calendar days after NTP with the contract.
4. Specifications, drawings and design calculations to be stamped and signed (see paragraph 5.00 b)
5. The Building-Related Interior Design (BRID) and a Furniture-Related (FRID) Interior Design will be reviewed during the 65% Building Design review.
6. The number of calendar days for completion shall be no more than 60 calendar days after NTP with the contract.

SPECIFICATIONS AND DRAWINGS DISTRIBUTION

Addressee	Site, Utilities & Foundation (65%)					Site, Utilities & Foundation (95%)						Site, Utilities & Foundation (100%)					Architectural Renderings (Submit with 95% Building Design)					Building Design and Landmark Feature (100%) Submittal					Final Sealed Drawings				
						Building Design and Landmark Feature (65%) Submittal						Building Design and Landmark Feature (95%) Submittal															Site, Utilities & Foundation, Building Design and Landmark Feature				
	Specifications	½ Size Drawings	Full Size Drawings	Design Analysis	Exterior Color Board	Specifications	½ Size Drawings	Full Size Drawings	Design Analysis	BRID/FRID	Exterior Color Board	Specifications	½ Size Drawings	Full Size Drawings	Design Analysis	Annotated Comments	Framed Orig. Rend.	Framed Color Print	35mm Color Slides	4" x 5" Color Neg.	Electronic Image (BMP)	Specifications	½ Size Drawings	Full Size Drawings	Design Analysis	Annotated Comments	Specifications	½ Size Drawings	Full Size Drawings	Electronic Spec's	Electronic Drawings
Anil Nisargand ¹	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
John Zabukovec ²	10	10	0	10		10	10	0	10			10	10	0	10	10	0	0	0	0	1	5	5	0	5	5	2	2	0	1	1
Thomas Poole ³	1	1	0	1	1	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	1
Ted Lewis ⁴	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	1	1	1	1	1	1
Doug Ramsey ⁵	2	2	0	2	0	2	2	0	2		0	2	2	0	2	1	0	0	0	0	0	2	2	0	2	1	2	2	0	0	0
Larry McVay ⁶	10	10	1	10	2	10	10	1	10	2	2	10	10	1	10	1	1	1	1	1	1	3	3	1	3	1	3	3	1	1	1
NWRA ⁷	2	2	0	2	0	2	2	0	2		0	2	2	0	2	2	0	2	2	2	2	2	2	0	2	2	2	2	0	1	1
Fort Detrick ISEC ⁷⁸	1	1	0	1	0	1	1	0	1		0	1	1	0	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1
Totals	27	27	2	27	4	27	27	2	27	4	4	27	27	2	27	17	1	5	5	5	7	15	14	2	15	12	13	13	2	8	8

1	U.S. Army Corps of Engineers, Seattle District ATTN: CENWS-EC-DB-SP (Nisargand) P.O. Box 3755 Seattle, WA 98124 - 3755
2	U.S. Army Corps of Engineers, Seattle District ATTN: CENWS-EC-CO-TR (Zabukovec) P.O. Box 3755 Seattle, WA 98124-3755
3	U.S. Army Corps of Engineers, Seattle District ATTN: CEWNS-PM-MB (Poole) P.O. Box 3755 Seattle, WA 98124-3755
4	U.S. Army Corps of Engineers Northwest Area Office (CENWS-EC-NW-FL) P.O. Box 92146 Tillicum, WA 98492-0146 ATTN: Ted Lewis
5	U.S. Army Corps of Engineers Northwest Area Office (CENWS-EC-CO-TR) P.O. Box 92146 Tillicum, WA 98492-0146 ATTN: Doug Ramsey
6	HQ, I-Corps and Fort Lewis ATTN: AFZH-DPW-P (Larry McVay) Bldg 2012 Fort Lewis WA 98433-9500
7	US Army Installation Management Agency Northwest Region SFIM-NW (Ned A. Shepherd, PE) Bldg 60, 2 nd Floor, West Wing 1 Rock Island Arsenal Rock Island, MD 21702-6200
8	Department of the Army US Information System Engineering Command – Ft. Detrick Engineering Office ATTN: AMSEL-IE-DE-CO (Kimberley) 1435 Porter Street, Suite 200 Fort Detrick, MD 21702-5047

4.00 CONSTRUCTION REQUIREMENTS

a. Notice To Proceed

After the Contractor has completed the applicable project design documents (see Design Requirements above) the Government will issue to the Contractor a Notice to Proceed with construction of the completed design.

b. Pre-Construction Conference.

Following the initial notice to proceed and prior to commencement of construction, a Pre-Construction Conference will be held to acquaint the Contractor with the general plan of contract administration and requirements under which the construction operation is to proceed. This conference will also inform the Contractor of the obligations concerning equal opportunity and the Federal wage rates reporting system.

c. Construction and Contract Administration.

The various administrative requirements associated with the construction of these facilities are prescribed by the Division 1 specifications included in this RFP.

d. LEED Progress Reports

During construction the status of LEED construction and documentation requirements will be of particular interest to the Government. During the entire period of construction and the one-year period following acceptance of the facilities, the contractor shall submit progress reports. These reports shall be submitted at three-month intervals. All reports and any supporting documentation shall be coordinated by the LEED Accredited Professional. Report components shall include:

- (1) descriptions of all project features being constructed to attain LEED points.
- (2) current construction status (future/under construction/completed) of each feature.
- (3) copies of all documentation required to be submitted for LEED certification in the format required by the USGBC. Examples might include trip tickets with volumes of material recycled, evidence of locally manufactured products, system performance verification through commissioning, etc.
- (4) copies of LEED Letter Templates carrying the signature of the responsible designer or other appropriate party.

e. Contract Closeout.

Completion, acceptance, and contract settlement are accomplished when final punch list items (see Section 00700 - Contract Clause Inspection of Construction) have been completed and approved, "as-built" drawings and O & M manuals are complete, and warranty provisions and dates are established.

5.00 PREPARATION OF PROJECT DESIGN DOCUMENTS

a. General

The project design documents shall include construction drawings, specifications, and design analysis for categories such as, but not limited to, demolition (including necessary HTRW pre-construction work), architectural, fire protection/life safety, civil, structural, mechanical, electrical, grading, drainage, paving, telecommunications, and utility service. Provide specifications in sufficient detail to fully describe and demonstrate the quality of materials, the installation, and performance of equipment, and the quality of workmanship. Detailing and installation of all equipment and materials shall comply with the manufacturer's recommendations, the quality standards established by the Uniform Federal Guide Specifications and the requirements of the RFP. Provide a design analysis for each discipline of work with sufficient backup data including the necessary calculations, tables, methods, and sources used in determining equipment and material sizes and capacities. Design development shall conform to the criteria and requirements of Section 00860 - Statement of Work.

b. Architect of Record

All construction drawings and design calculations of the Contractor and any changes to these documents shall be affixed with the registration stamp (seal) of the Architect of Record (see Section 01451 Contractor Quality Control, paragraph 3.4 Quality Control Organization) and that of all consultants, as appropriate, (i.e. architectural, landscape architectural, structural, civil, mechanical, electrical, and fire protection engineers) before submittal for review. The BRID/FRID portion of the contract shall be prepared by a professional commercial interior designer. All design professionals shall have current registration to practice in the United States. Approval shall be indicated on all documents by having the professional stamp/seal of the architect or engineer with personal signature over same appearing on all sheets as applicable to their specialties.

c. Construction Drawing Format

(1) The Contractor in preparing construction drawings shall utilize AutoCAD or Bentley Microstation cad software. The software version shall be as indicated in paragraph 3.00 c of this section. Final "as – designed" drawings are required to be submitted in both AutoCAD and Microstation versions. Regardless of the software used to develop the drawings, the electronic "As-Built" sets shall be provided as stipulated in Section 01702, "As-Built Record Drawings".

(2) The project title is FY04 Whole Barracks Renewal, Fort Lewis, WA. The Army project number (PN) is 44794. The project drawing file number is 22s/721-12-15. The project title, number and drawing file number shall appear in the title block of each drawing plate.

(3) Drawing file format, drawing volume organization, title block information, standard symbology and abbreviations, and level/layer schemes shall be fully consistent with the current version of the A/E/C CADD Standard. A copy of the A/E/C standard is available at: <http://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp>.

(4) Only standard fonts provided by MicroStation or AutoCAD are allowed to be used in the creation of CADD files. Fonts created by third parties or the designer are prohibited.

(5) The use of Reference files and Xrefs during the preparation of design drawings is up to the discretion of the designers. However, all CADD files submitted to satisfy design or construction requirements shall be free standing and usable without modification or customization by the Corps of Engineers and Fort Lewis. All file resources (such as cells/blocks, fonts, line styles, plot and pen tables, etc.) shall be provided concurrently with the design files. All hard coded references shall be revised to use a relative path. The use of macros incorporating tag data management or similar routines is prohibited unless the offeror can demonstrate functionality to the Government and obtain written approval for their use.

d. Metric Design and Drawing Production.

This is a metric project. All design shall be performed using SI units of measure and all project design documents are to be prepared in "Hard" metric SI units. The use of "Soft" metric units (arithmetic conversion of inch-pound (IP) units) is not permitted for site or building design. IP conversion to soft metric shall only be used for measurements of manufacturer equipment and similar items that are fabricated using IP units. Establish and maintain rational metric modules (such as 100 mm) for building structural frames. The following publications are recommended as guides to aid the Contractor in the preparation of the project design documents:

METRIC GUIDE FOR FEDERAL CONSTRUCTION

Published by - National Institute of Building Sciences
1201 L Street NW
Washington, D.C. 20005 (202) 289-7800

MASTERMETRIC - A Guide for Using the International System of Units (SI) in Construction Documents

Published by - AIA Master Systems - MASTERSPEC Specifications
332 East 500 South Street
Salt Lake City, Utah 84111-3309 (800) 424-5080

e. Construction Drawing Content.

(1) General

Construction drawings shall include all details necessary to portray the design requirements. All construction drawings shall be sealed, signed and dated by the responsible registered professional engineer, architect, landscape architect or interior designer. Minimum drawing scales shall be as indicated in this section. Drawings shall have the full last name of the responsible person in the "Designed By" and "Checked By" boxes in the title block.

(2) Completeness

Prepare all drawings on Computer-Aided Design and Drafting (CADD) so that they are well-arranged and placed for ready reference and so that they present complete information. The Contractor shall prepare the drawings with the expectation that the Corps of Engineers, in the role of supervision, will be able to construct the facility without any additional assistance from the Contractor. Drawings shall be complete, unnecessary work such as repetition of details shall not be permitted. Do not show standard details not applicable to the project, and minimize unnecessary wasted space. Do not include details of standard products or items that

are adequately covered by specifications on the drawings. Detail the drawings such that conformance with the RFP can be checked and to the extent that shop drawings can be checked. Do not use shop drawings as design drawings. The design documents shall consist of drawings on "A1" size sheets. The Contractor shall use standard Corps of Engineers title blocks and borders on all drawings. Submit an index of drawings with each submittal.

(3) Documentation of Building Variations

- (a) Seattle District, Corps of Engineers requires the preparation of separate drawing volumes for each building type and the site and landmark related improvements. Within each building type volume, separate drawing plates shall also be provided for each compass direction variation of that building type. Thus, if the only change to a building used repetitively is its compass orientation, all plans, elevations and all other site dependent/relative drawings shall be provided for each variation in orientation. This duplication is not required for drawings such as details or sections that can be generically referenced to multiple buildings or building types.
- (b) For this project, this requirement will necessitate the provision of additional drawing plates for the COF buildings since there are locations on the north and south sides of the training area.
- (c) The Battalion Headquarters buildings have extensive variations in interior floor plan and room requirements and shall be provided as separate, stand alone drawing volumes.
- (d) Seattle District, Corps of Engineers also requires that the entire floor plan area of every floor of every barracks building be drawn and included as a separate drawing plate. For the UEPH facilities, drawings shall be provided for all building and compass orientation variations, and for each floor level (even if all floor plans are exact copies) with unique room (room module) number schemes for each building.

f. Minimum Drawing Set Requirements

The following drawings constitute the minimum acceptable submittal. Scales indicated are the minimum allowable, drawings may be provided at larger scales as long as the scale remains consistent for like drawings used in common by several disciplines.

(1) General

- (a) Cover sheet with project and building identifying information, vicinity and site maps, submittal identification.
- (b) Abbreviations, symbols and drawing format explanations.
- (c) Drawing index including sheet number, plate number, drawing title and CAD filename.

(2) Geotechnical

- (a) Logs of explorations and location plans of explorations. (Plans at 1:300 scale)

(3) Civil

- (a) Site plan(s) that accurately show existing and finish grade contours and drainage, location of pavements, layout of major utility lines and services, features to be retained, capped, demolished or removed, location of all buildings, and project boundaries. Separate plans will indicate the construction free zone, staging and all construction fenced areas. Include all erosion control structures, road alignment information, traffic control plans and signage. (Overview site plans of entire superblock (Alpha/Echo) at 1:2000, detailed site plans at 1:300.)
- (b) Typical site paving including pavement and soil cross-sections and site utilities including locations of valves, hydrants, etc. (Sanitary sewer profiles, H at 1:600, V at 1:60.)
- (c) Contractor shall provide civil site details.

(4) Landscape Architecture

- (a) Site plans indicating planting areas, limits of landscape areas and seeded areas, plant legends and symbology, and site furniture. Include buildings and site features for reference. Plans shall correspond with the site layout and grading plans and reference coordinates, north arrows, graphic scales and appropriate legends. (Plan scale to match corresponding detailed Site plan)
- (b) Lawn and Landscaping Irrigation System drawings clearly showing the piping layout and location of sprinkler heads coordinated with the landscaping plan, control valves, backflow preventers, rain check switches, controllers, etc. Indicate buildings, walks, shrubbery, trees, and other obstacles that might interfere with the proper operation of the sprinkler system. Details of the sprinkler head installation, valve boxes, and other irrigation appurtenances shall be submitted. (Plan scale to match corresponding detailed Site Plan).
- (c) Schedules of plant materials which indicates their botanical and common names, plan symbols, quantities, sizes, condition furnished, and pertinent remarks. Final drawings shall also include the basic details for installation of tree, shrub, and ground cover planting, as well as any other applicable details for clarification of specific project requirements.

(5) Architecture

- (a) Architectural floor plans, which show overall dimensions, room dimensions and areas, equipment and fixtures and door swings. (Floor plans at 1:100 or 1:50 scale)
- (b) Reflected ceiling plans, which show light fixtures, HVAC diffusers, fire alarm and fire sprinkler devices. (match floor plan scale)
- (c) Exterior elevations that show all elevations and identify exterior materials. (match floor plan scale)
- (d) Interior elevations, which show floor, ceiling, wall materials and type of fixtures for rest rooms. (minimum scale of 1:50)

- (e) Interior finish schedule, which shows materials and colors for wall, ceiling, and floor finishes for each room, and any special interior design features such as soffits, fascias, and lighting troughs, etc. Indicate ceiling heights.
- (f) Schedules that show type, size, material, fire rating, hardware group, and frame information. Schedules shall be provided for doors, windows and louvers. These schedules shall indicate sizes, types, and details for all items shown on floor plans. Door schedule shall include hardware set numbers linked to hardware schedule in specifications.
- (g) Fixture and Equipment Plans show compatibility of equipment and fixture placement. (minimum scale of 1:50)
- (h) Detail sheets for items such as doors, windows, louvers, roof and wall connections and joints, ceiling construction, special construction and finishes, stairs, cabinetry, etc. (use scales of 1:5, 1:10 or 1:20 to as necessary to provide clarity)
- (i) Include a "Life Safety and Building Code Summary" plate that documents all pertinent codes and regulations and the project specific floor areas, construction type(s), occupancies, and code interpretations made to provide the information of interest to an AHJ. Include schematic floor plan(s) (for information only) that illustrate exiting scheme, fire areas, area separation walls, etc.
- (j) Roof and attic plans shall show access, ventilation methods, materials, slopes, drainage, roof features, fall protection anchors, etc. (match scale used for floor plans)
- (k) Section drawings depicting whole buildings, partial building sections and wall sections. (provide building sections at same scale as floor plans, provide partial building sections and wall sections at 1:25 scale or larger)
- (l) Enlarged floor plans of specific areas such as room modules, toilet rooms, stairs, and zones with extensive built in features that cannot be shown on standard floor plans. (1:50 scale shall be used for enlarged plans, or larger scale as necessary for clarity).
- (m) Wall types schedule and details plate that indicates wall materials and assembly requirements. Indicate fire rated construction or acoustic properties required for partitions. Fire ratings shall cite a tested assembly such as "UL Design No. " Representative wall sections shall be large enough to clearly depict all materials.
- (n) Signage schedules and details identifying types of signs and locations on exterior and interior of buildings.

(6) Structural

Structural drawings for proposals and submittals shall be separate and distinct from architectural drawings.

- (a) Foundation plans with main footings and grade beams where applicable showing sections and details. (Scale of plans shall match architectural floor plans.)

- (b) Structural plans including floor and roof framing plans, sections and details. Where beam, column, and footing schedules are used, show schedules and fill in sufficient items to indicate method to be used. Show typical bar bending diagram if applicable. (Scale of plans shall match architectural floor plans, sections shall be drawn at 1:25 and details shall be drawn at 1:5, 1:10 or 1:25 scale.)
- (c) Typical sections (1:50 scale or larger) for each type of foundation, floor, wall, and roof construction. Include exterior walls (including CMU enclosures), interior bearing walls/floors, partitions, and all other typical conditions.
- (d) The final structural drawings shall contain the following information as a set of general notes:
 - The allowable soil bearing value.
 - The design stresses of structural materials used.
 - The design live loads used in the design of various portions of the structures.
 - The design wind speed.
 - The seismic zone and the "K", "C", "I" and "Z" values used in design

(7) Plumbing

- (a) Indicate locations and general arrangement of plumbing fixtures and major equipment. The floor plan shall show all principal architectural features of the building, which will affect the plumbing design. Separate plumbing plans will not be required if sufficient information can be shown on the mechanical plans to meet the requirements shown above. (All plans shall be drawn at same scale as corresponding architectural floor plan). The floor plan shall also show the following:
 - Room designations.
 - Fixture Schedule.
 - Location of utility entrances.
 - Waste and water pipe location and size.
 - Fixture designations.
- (b) Include plan and isometric riser diagrams of all areas including hot water, cold water, waste and vent piping. Piping layouts and risers should also include natural gas and propane/air (and meter as required) gas and other specialty systems as applicable.
- (c) Include equipment and fixture connection schedules with descriptions, capacities, locations, connection sizes and other information as required.

(8) Fire protection

- (a) Prepare a plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. (All plans shall be drawn at same scale as corresponding architectural floor plan). Plans must be prepared and stamped by a Licensed Fire Protection Engineer. Provide the following information:

- The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, exit passageways, etc.
- The location and coverage of any fire detection systems.
- The location and coverage of any fire suppression systems (sprinkler risers, standpipes, etc.).
- The location of any other major fire protection equipment.
- Indicate any hazardous areas and their classification.

(b) Prepare a schedule describing the internal systems with the following information: fire hazard and occupancy classifications, building construction type, GPM/square foot sprinkler density, area of operation and other as required.

(9) Mechanical

(a) Mechanical drawings shall include heating and ventilation (HV) layout, single line diagrams of each type of piping system, HV system, and control logic diagrams. Type and capacity of all mechanical equipment shall be clearly indicated including necessary schedules listing operating data. The equipment capacities shall reflect actual performance of selected equipment. The schedules shall contain all pertinent information. The designer shall provide all calculations backing up equipment performance. For example: coils shall be de-rated for the glycol and altitude required by the project.

(b) The floor plans shall show all principle architectural features of the building, which will affect the mechanical design. (All plans shall be drawn at same scale as corresponding architectural floor plan). The floor plans shall also show the following:

- Room designations.
- Mechanical legend and applicable notes.
- Location of all ductwork or piping (double line ductwork required).
- Location and capacity of all terminal units (i.e., registers, diffusers, grilles, hydronic baseboards). Exhaust fan and range hood location.
- Size of all ductwork and piping.
- Thermostat location.
- Location of heating equipment (i.e., hot water generator, hot water heater, circulating pumps etc.).
- Location of all air handling equipment.
- Return air paths (i.e., undercut doors, transfer grilles).
- Flue piping size and location.
- Piping diagram for forced hot water system (if used).
- Gas piping

(c) Mechanical Room and Closet scaled layout drawings, including appropriate elevations and sections, as required, showing the room arrangement the Contractor proposes for all pieces of mechanical and electrical equipment and appurtenances thereto, such as but not limited to: hot water generators, hot water heaters, hot water tanks, pumps,

electrical control panels, fan coil units, ducts and piping that are to be located in the room. Mechanical and electrical layouts shall be coordinated to eliminate any conflicts of installed equipment.

- (d) Equipment schedules and installation details (1:20 scale or larger) for each special detail. Construction details, sections, elevations, etc., shall be provided where required for clarification of methods and materials of design. Roof and exterior wall penetrations shall be detailed on the drawings. Schedules shall include:

- Capacity
- Electrical characteristics
- Efficiency (if applicable)
- Manufacturer's name
- Optional features to be provided
- Physical size

(10) Electrical

- (a) Electrical, Exterior: The drawings shall include all exterior distribution transformers, primary electrical service, underground electrical ducts, manholes, communications lines/ducts and details of all new construction. Existing and new communications service lines, both overhead and underground, shall be properly identified. Show removals and relocations to any services, if any. Provide a complete symbol legend for all devices or equipment shown on the plans. (All plans shall be drawn at same scale as corresponding Civil site plan).

- (b) Required diagrams and details on Site Electrical Drawings.

- Off-Site Electrical Distribution Plan:
- Off-Site Primary Circuit Routing Plans:
- Off-Site One Line Diagram. (If applicable)
- Off-Site Details. (Aerial Pole Line Construction, etc.) (If applicable).
- On-Site Electrical Distribution Plan:
- On-Site One Line Diagram.
- On-Site Distribution Transformer Schedule: Provide with the following headings:
- Transformer Designation. Transformer Size (KVA). Building(s) Served.
- Primary Phase(s) and Circuit to which connected.
- On-Site Details (Site Lighting, Trenching, Pad-Mounted Transformer, etc.).

- (c) Electrical, Interior: The drawings shall include all power and lighting circuits. Panels and circuits for the various pieces of equipment and lighting systems shall be properly identified and separate plans provided for power, lighting and auxiliaries. Include riser (one line) diagrams for power for auxiliaries and schedules for panels, lighting, etc. Auxiliaries to include all C4 Communications systems, fire alarm and detection systems, intrusion detection and alarm system, and etc

- (d) Electrical Floor Plan. The floor plans shall show all principle architectural features of the building, which will affect the electrical design. (All plans shall be drawn at same scale as corresponding architectural floor plan). The floor plan shall also show the following:

- Room designations.
 - Electrical legend and applicable notes.
 - Lighting fixtures, properly identified.
 - Location of smoke and CO detectors.
 - Location of telephone and cable TV outlets.
 - Switches for control of lighting.
 - Receptacles.
 - Location and designation of panelboards. Plans should clearly indicate type of mounting required (flush or surface) and be reflected accordingly in specifications.
 - Service entrance (conduit and main disconnect).
 - Location, designation and rating of motors and/or equipment, which requires electrical service. Show method of termination and/or connection to motors and/or equipment. Show necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.
- (e) Building Riser Diagram (from pad-mounted transformer to unit load center panelboard): Indicate the types and sizes of electrical equipment and wiring. Include grounding and metering requirements.
- (f) Load Center Schedule(s): Load centers may be used in the individual living/sleeping modules of the Barracks only. Load centers are not acceptable in any other location. Schedules for Load Centers shall be provided and shall contain the same types of information as listed for Panelboards.
- (g) Panelboard Schedule(s): Schedule shall indicate the following information:
- Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting.
 - Branch Circuit Designations.
 - Load Designations.
 - Circuit Breaker Characteristics. (Number of Poles, Trip Rating, AIC Rating)
 - Branch Circuit Connected Loads (AMPS).
 - Special Features.
- (h) Lighting Fixture Schedule: Schedule shall indicate the following information:
- Fixture Designation.
 - General Fixture Description.
 - Number and Type of Lamp(s).
 - Type of Mounting.
 - Special Features.
- (i) Details: Construction details, sections, elevations, etc., shall be provided where required for clarification of methods and materials of design.
- (j) Design of the fire alarm and detection system shall include layout drawings for all devices and a riser diagram showing the control panel, annunciator panel, all zones, radio transmitter and interfaces to other systems (HVAC, sprinkler, etc.).

- (k) Specify all components of the Fire Suppression (FS) System in the FS section of the specifications. Provide a clear description of how the system will operate and interact with other systems such as the fire alarm system. Include a riser diagram on the drawings showing principal components and interconnections with other systems. Include FS system components on drawing legend. All components shown on floor plans shall be designated as FS system components (as opposed to Fire Alarm components). Show the location of FS control panels, HVAC control devices, sensors, and 120V power panel connections on the floor plans. Indicate zoning of areas by numbers (1, 2, 3) and detectors subzoned for cross zoning by letter designations (A and B). Differentiate between ceiling mounted and underfloor detectors with distinct symbols and indicate subzone of each.
- (l) Show location of telephone outlets (including pay phones) on the plans. Include legend and symbol definition to indicate height above finished floor. Show Telephone Conduit System Riser Diagram. Size conduit on Riser Diagram. Do not show conduit runs between backboard and outlets on the floor plans. Underground telephone distribution conduit shall be shown on either the electrical or electronic site plan.
- (m) Grounding System. The specifications and drawings shall completely reflect all of the design requirements. The specifications shall require field tests (in the construction phase), witnessed by the Contracting Officer, to determine the effectiveness of the grounding system. The design shall include drawings showing existing construction. Verification of the validity of any existing drawings and/or any other data furnished by the Government shall be the responsibility of the engineering services firm.
- (n) Provide a statement describing the extent of any exterior work such as telephone lines, cable television (TV) distribution cables, duct banks, etc., outside of 5 feet from the building line.
- (o) Provide the name of the licensed corrosion engineer or NACE specialist. Provide the following for cathodic protection systems:
- (p) Clearly define areas of structures or components in soil or water to be protected. Type system recommended, comparison of systems, cost estimates showing all equipment alternatives.
- (q) Design of Cathodic Protection. The design shall clearly provide a thorough and comprehensive specification and drawing. The design plans and specifications shall show extent of the facilities to be protected, location and type of anodes, location of test points, details for sectionalizing an underground piping system. This design shall be complete enough to purchase equipment and build without design changes to meet criteria of protection.

g. Specifications.

(1) General.

For the preparation of construction specifications the Contractor shall utilize the guidance provided in Section 00860 - Statement of Work and the outline Specifications Division 2 through 16 provided in Section 00890. These sections reflect guidance for materials, equipment and workmanship required for this project. Particular attention shall be given to the introductory

paragraphs to Section 00890. These paragraphs provide specific guidance concerning the preparation of the project specifications. When preparing project specifications the guidance provided in this RFP takes precedence over any routine boilerplate guidance found in the Uniform Federal Guide Specification (UFGS) section being used. The Contractor is to provide specifications covering all work for Divisions 2 through 16. The Contractor shall submit marked-up and final specifications as required. All Division 1 specifications are included, complete, in the RFP and shall not be edited unless directed by the RFP.

(2) Format.

(a) The Contractor shall be required to use unedited Unified Facilities Guide Specifications (UFGS) and designated unedited Corps of Engineers Guide Specifications (CEGS) sections for developing project specifications. UFGS are listed with an A, an N, or no letter designation after the specification number. UFGS that cover similar subjects and those that have been identified for later consolidation into a single specification section are identified with an alpha designation ("A" for USACE, "N" for NAVFAC, and "F" for AFCEA) following the section number. Users of UFGS should first consider a UFGS without an alpha designation if one is available and next a UFGS with an alpha designation of their agency, and lastly a UFGS with an alpha designation of another agency. Specification paragraphs and subparagraphs shall not be rewritten to lessen the quality of the original technical specification sections. The technical guide specifications describe the type and quality of material and installation normally acceptable for Corps of Engineers Construction, and often represent specific agreement between the Corps and the applicable industry. The provision of the technical guide specification should not be changed without justification. Justifications and identification for additional materials shall be identified in the design analysis under the appropriate design discipline. Designer notes shall not appear in any design submittals. Any proposed deletions shall be clearly marked in all design specification submittals except for the 100% submittal. Only bracketed choices and inapplicable items shall be marked for deletion. These items shall be removed in corrected 100 percent specifications submittal. The Contractor shall complete the editing of all options in these specifications. Where designer notes are provided, the Contractor shall edit the choice in accordance with the recommendations and guidance of the Notes, except where specific guidance has been provided with this RFP (i.e. submittal paragraph).

(b) Editing Technical Specifications (Designated CEGS or UFGS)

(1) ADDITIONS: If the specifications of the UFGS or designated CEGS does not cover a feature that is in the project, new sentences and/or paragraphs shall be inserted in the proper locations to adequately cover the feature of work. Additions shall not lessen the quality of materials indicated by the specifications. If a new material is added, it shall be properly referenced in "Applicable Publications," "MATERIALS," "SUBMITTAL," "TESTS," and "INSTALLATION" paragraphs, as applicable.

(2) DELETION OF INAPPLICABLE TEXT MATERIAL, AS NECESSARY, TO TAILOR THE SPECIFICATIONS TO FIT THE PROJECT: After deletion has been made to all inapplicable paragraphs, subparagraphs, choices, and schedules from the body of the specifications (including but not limited to the correction of lists in "Submittals," "Tests," and "Installation" paragraphs), delete all inapplicable references listed in the preceding

"APPLICABLE PUBLICATIONS" and "MATERIALS" paragraphs. Deletions shall not lessen the quality of materials indicated by the specifications.

(3) Do not remove any special code markings for submittals, references, tests or section references, unless the text is not required.

(4) REFERENCES TO SPECIFICATION SECTIONS. The Contractor shall be responsible for coordinating references, along with the technical requirements, to specific specification sections (number and title) within the project specifications. Section references (title and number) shall be revised to reflect the titles and numbers of specification sections used.

(c) Developing Additional Project Specifications. If the need should arise for developing project specifications on materials/items not covered in by the UFGS or designated CEGS, the Contractor shall develop specifications utilizing commercial Construction Specifications Institute (CSI), 16 Division, 3 Part Section Format. These specifications shall conform to the applicable criteria requirements indicated in the solicitation. Adjust section numbers which conflict with the specifications used in the Project Specifications. Each of these developed specification sections shall be in the same format as the CSI format specifications included in the UFGS (including the submittal paragraph). Commercially available guide specifications such as "SpecText" published by The Construction Specifications Institute and "MasterSpec" published by The American Institute of Architects or Unified Facilities Guide Specifications (UFGS) may be used, subject to the format, coding and submittal paragraph requirements. References to the "Architect/Engineer" and the "Owner" shall be changed to refer to the "Government" or "Contracting Officer," as appropriate. The specifications shall clearly identify, where appropriate, the specific products chosen to meet the requirements of the specifications (manufacturers' brand names and model numbers or similar product information). The Contractor shall be responsible for coordinating references, along with the technical requirements, to specific specification sections (number and title) within the project specifications. Section references (title and number) shall be revised to reflect the titles and numbers of specification sections used.

(3) Specific Products

If the design is based on a specific product, the specification shall consist of the important features of the product. The specification shall be detailed enough such that another product meeting the specification could be substituted and it would not adversely impact the project.

(4) Submittal Register.

Develop the submittal requirements to be used during construction, while in the design phase of the contract, by producing a Contractor Submittal Register during design. Attach a submittal register to each section of the specifications for the submittal requirements of that section. Prepare the Submittal Register on ENG Form 4288. The Contractor shall be responsible for listing all required submittals necessary to ensure the project requirements are complied with. The Register shall identify submittal items such as shop drawings, manufacturer's literature, certificates of compliance, material samples, guarantees, test results, etc that the Contractor shall submit for review and/or approval action during the life of the construction contract. The Contractor shall place all the Submittal Register pages in an appendix of the final specifications.

(5) Modifications.

Any Division 2 through 16 specifications that have been provided in full in this RFP shall be included unedited in the final design specifications. The Division 1 Specifications included in the RFP have been prepared by the Government and shall not be revised by the Contractor, except as follows:

- (a) Section 01330 Submittal Procedures. Complete the submittal register ENG Form 4288. See specification Section 01330 for guidance and sample blank form. The submittal register shall be prepared in Microsoft Excel, and both hard copy and electronic file shall be furnished with the contract documents.
- (b) Section 01451 Contractor Quality Control. Review and edit, if necessary, Table 1 - Minimum Sampling and Testing Frequency to assure that the materials and minimum sampling and testing frequency shown are applicable for the work being done.
- (c) Section 01452 Special Inspection for Seismic-Resisting Systems. The Design-Build Contractor (Designer) is to follow the guidance provided within the specification when preparing the project specifications.

h. Design Analysis.

(1) General.

Design analysis includes complete design narrative and backup calculations to support each discipline of work. The Contractor shall utilize the guidance provided in Section 00860 - Statement of Work, and the following requirements. These analyses should include, but not be limited to, all design basis information for civil, architectural, landscape architectural, structural, electrical, telecommunications, fire protection and mechanical disciplines. Design analyses shall be presented in a clear and legible form incorporating a title page, and a table of contents. Sources of information, formula, and references shall be explained. Assumptions and conclusions shall be explained and cross-referencing is to be clear. Organize all information to be grouped by building type with a separate section for all site work. Design analyses shall be accomplished by Registered Professional Engineers or Architects qualified in the respective design field (see paragraph: Architect of Record).

(2) Specific Content

Items provided below are not an all inclusive list and do not reduce the requirement for complete and comprehensive design analyses. The following specific content items shall be provided:

- (a) LEED analysis, summary point total sheets and LEED certification documentation including completed and draft letter templates. LEED analysis shall clearly identify and discuss the methodology for conformance with each prerequisite and individual credit. Provide a brief explanation for credits not available by project conditions, or not exploited by contractor choice. In final submittal, all LEED certification documentation shall be structured to "stand alone" for easy extraction by Fort Lewis.
- (b) All LEED materials shall be provided in a separate section of the design analysis.
- (c) Complete discussion of Building Code (IBC), Life Safety (NFPA 101) and Fire Protection (UFC 3-600-01) issues for each building type.
- (d) Computations for sizing equipment, air duct design, ventilation design, and thermal resistance factors for ceilings, roofs, and exterior walls and floors.

- (e) Zonal cavity lighting calculations for all interior lighting and point lighting calculations for all exterior lightning.
- (f) Short circuit, load flow, and any necessary coordination studies.
- (g) Vendor cut sheets of major component and equipment items, and items which are not commonly available.

(3) Media and Format.

Present the design analysis on 8-1/2-inch by 11-inch paper except that 11 x 17 (double folded to 8-1/2 by 11) sheets may be used when required for graphs or other special calculation forms. All sheets shall be in reproducible form. The material may be typewritten, hand lettered, handwritten, or a combination thereof, provided it is legible. Side margins shall be 1-inch minimum to permit side binding and head to head printing. Bottom margins shall be 1-1/4-inches, with page numbers centered 0.5 inch from the bottom.

(4) Organization.

Assign the several parts and sheets of the design analysis a sequential binding number and bind them under a cover indicating the project name, name of the facility and project number, if applicable. The title page shall carry the designation of the submittal being made. The complete design analysis presented for final review with the final drawings and specifications shall carry the designation "FINAL DESIGN ANALYSIS" on the title page.

(5) Design Calculations.

Design calculations are a part of the design analysis. When they are voluminous, bind them separately from the narrative part of the design analysis. Present the design calculations in a clean and legible form incorporating a title page and index for each volume. Furnish a table of contents, which shall be an index of the indices, when there is more than one volume. Identify the source of loading conditions, supplementary sketches, graphs, formulae, and references. Explain all assumptions and conclusions. Calculation sheets shall carry the full names of the author and the checker and the dates of calculations and checking. No portion of the calculations shall be computed and checked by the same person.

(6) Automatic Data Processing Systems (ADPS).

When ADPS are used to perform design calculations, the design analysis shall include descriptions of the computer programs used and copies of the ADPS input data and output summaries. This description must be sufficient to verify the validity of methods, assumptions, theories, and formulas. When the computer output is large, it may be divided into volumes at logical division points. Precede each set of computer printouts by an index and by a description of the computation performed. If several sets of computations are submitted, they shall be accompanied by a general table of contents in addition to the individual indices. Preparation of the description which must accompany each set of ADPS printouts shall include the following:

- Explain the design method, including assumptions, theories, and formulae.
- Include applicable diagrams, adequately identified.
- State exactly the computation performed by the computer.
- Provide all necessary explanations of the computer printout format, symbols, and abbreviations.
- Use adequate and consistent notation.

- Provide sufficient information to permit manual checks of the results.

Spreadsheet style programs are acceptable for structural analysis and design. Under a repetitive condition, at least one manual computation must be performed for each unique condition. All data, formulas and any referenced items should be clearly shown before initiation of the program. Any computer models generated for use with modeling programs should be accompanied by drawings indicating coordinate system, joint numbering and element/member numbering scheme. **Maximum stresses used to design a member that are printed out in summaries of computer programs shall be circled, checked, or highlighted to accelerate reviews.**

i. Interior Design Products and Services.

(1) General

Building Related Interior Design (BRID) and Furniture Related Interior Design (FRID) submittals are both required for this project. BRID and FRID tasks and submittals will be coordinated by the same person. BRID materials are permanently installed in facilities and are included in the project's contract drawings and specifications. FRID materials are not included in the project's contract drawings and specifications and are not purchased with project funds. Purchase and installation of FRID materials are the responsibility of the Government. The Contractor shall use the guidance provided in Section 00860 Statement of Work and in COE Engineering Regulation ER 1110-345-122 and Design Guide DG 1110-3-122. Selection of materials, colors, textures and finishes must be coordinated with and accepted by the Government prior to the final submission. Submittals will be reviewed by Seattle District, Corps of Engineers and Fort Lewis.

(2) BRID Products/Services

- (a) The BRID shall involve the selection and sampling of all field applied or manufacturer component finishes including material, color, texture and patterns necessary to complete the building's interior architectural features. Furniture layout plans for Soldier Community Building (if used), COF and BN HQ buildings shall only be provided to the extent they are required for the coordination of permanent building features or systems. Typical (one per each living/sleeping room size) furniture layout plans for barracks room modules integrating the furnishings listed in Section 00860 shall be provided to confirm room function.
- (b) In addition to representation of wall, floor, ceiling, door and window surface materials/finishes, the BRID shall include permanent features such as signage, graphics, casework, blinds and equipment items.
- (c) BRID shall document coordination required with mechanical, plumbing, fire protection, electrical, and communications systems.
- (d) All materials, colors, textures and patterns identified and selected through the BRID process shall be incorporated into the contract drawings and specifications by drawing, note, schedule, specification or similar documentation.
- (e) BRID shall include written descriptions of interior design concepts and specific solutions for sustainability, safety, occupant health and welfare, functionality, durability, maintainability and visual image presented.

- (f) The design philosophy shall use a warm neutral background color with appropriate accent colors.

(3) BRID Submittals

- (a) Present architectural finish samples in an orderly arrangements according to like rooms/areas receiving like finishes. Each like room receiving like finishes will be noted as a Color Scheme. Each Color Scheme shall have a written description of material used. This written description shall use the same material abbreviations and notes that appear on the Room Finish Schedule and Legend in the contract drawings. Submit the BRID concurrently with architectural design submittals. A BRID shall be provided together with each building type submitted.
- (b) Preliminary Submittals: The Contractor shall submit three complete sets of the initial BRID package. All BRID proposals shall be reviewed and commented on by the Government. All accepted materials will be documented. The BRID package will be returned to the contractor. The Interior Designer shall revise the BRID binders after each review and update the BRID to satisfy review comments. Each submittal will follow this method of review until the Government approves the completed BRID package.
- (c) Final Submittal: After approval of the Preliminary Submittal(s), the Contractor shall submit four (4) complete sets of the approved and final package. Once the Contractor has submitted the BRID and the Government has approved the submittal, all materials, finishes, colors, textures and pattern submitted and approved for this project are then considered as part of the contract and the Contractor shall furnish all approved BRID finishes. No deviations will be considered.

(4) BRID Submittal Format

- (a) This information shall be submitted in 3" or 4" D-ring binders, with 8-1/2" x 11" format, long dimension vertical. Fold out pages (11" x 17" format) may be used for drawings or text only. Foldouts pages shall reduce to 8-1/2" by 11" size. No foldouts on the top or bottom of the pages. Place the project title, base, architectural firm, page number and date on the bottom of each page or module.
- (b) The rigid modules conforming to 8-1/2" x 11" size shall support and anchor all samples. Anchor large or heavy samples with mechanical fasteners, Velcro or double sided foam tape. Rubber cement or glue will not be acceptable.
- (c) Assemble the 8-1/2" x 11" pages and modules in binders. Holes for placement of the modules in the binder shall be 3/8" in diameter. Each binder shall be identified on the outside spine and front cover by title, project number, percentage phase and date.
- (d) Material and finish samples shall indicate true pattern, color and texture. Carpet samples shall be large enough to indicate a complete pattern or design. Provide manufacturer and product code information.
- (e) Where paint manufacturers color names and numbers are used indicated the finish of the paint such as gloss, semi-gloss, flat and so on.

- (f) Signage may include emblems, striping, letters, numbers and logos. The interior designer shall consider visual appearance, organization, location, structural supports (if required) and relation to other base graphics. Indicate on a separate signage sheet the location and message for all signage. Submit a sample of the signage material finish and color with the structural finishes.
- (g) Photographs or colored photocopies of materials are generally not acceptable. However, with pre-approval by the Government, particularly heavy or bulky samples and materials may be presented by clear color photographs, which indicate actual colors and textures. Where special finishes such as metal roof panels are required, small samples shall be attached to the board, and additional samples not less than 12 inches square shall be submitted with the board.
- (h) Color boards shall be submitted with the 65% and 95% Building Design submittals in accordance with the SUBMITTALS table provided above. Additional color boards will only be required if there are substantial changes after the 95% submittal. Minor changes made after the 95% submittal may be made by submitting individual 8-1/2" X 11" modules depicting the change.

(5) Content Sequence of BRID Submittal.

The BRID Binder shall include the following information at each design submittal in this order:

- Title page
- Table of contents
- Design objectives - A statement of design objectives explaining the interior design philosophy of the facility. List design objectives and the proposed method of accomplishing the objectives.
-
- Interior sample finish boards shall be grouped as schemes (i.e. Scheme A, Scheme B, etc.) with each scheme indicating the array of all finishes for a particular room or class of rooms
- Room finish schedule
- Signage types scheme
- Signage plan
- Integration and layout of ACSIM specific furniture package (GFGI) to be provided in UEPH room modules. Plan must show suitability of proposed space to suit the furniture to be provided.

(6) FRID Products/Services

- (a) The FRID shall coordinate with the BRID to provide a unified design. FRID will provide space planning, furniture and equipment layouts and selection of furnishings related

finishes including material, color, texture, fabrics and patterns necessary to complete the building's furnishings. Furniture layout plans shall be provided for the Barracks, Soldier Community Building (if used), COF and BN HQ buildings. Furnishings incorporated shall be as indicated in Section 00860.

- (b) Furniture and equipment selected shall integrate the occupants functional, maintenance and aesthetic requirements. Contractor shall coordinate with Ft. Lewis furniture and equipment manager and occupant representatives to identify and use appropriate Government Sources of Supply (such as GSA listed vendors) for acquisition. Barracks furnishings will require a procurement separate from COF and BN HQ buildings.
- (c) Where specialized furnishings are not available from Government Sources of Supply, the contractor shall develop procurement documentation as required by FAR for open market purchases.
- (d) All furniture plans, sources, quantities, materials, colors, textures, fabrics and patterns identified/selected through the FRID process are to assist the Government with the acquisition. The acquisition and installation of furniture is separate from this contract. FRID documentation shall NOT be incorporated into the contract drawings and specifications.
- (e) FRID shall include written descriptions of the application of interior design concepts to furnishings and equipment.
- (f) Provide procurement documents that include all source data, item identification, workstation component breakdowns, counts of all furniture items by piece or workstation, and detailed plans of furniture layout.
- (g) Contractor's interior designer shall provide consultation during Government's procurement, delivery and installation activities to ensure complete coordination of the acquisition and proper coordination with the overall facility design scheme.

(7) FRID Submittals

- (a) Present furniture plans and item photos or drawings in orderly arrangements according to like rooms/areas receiving like furnishings. Each like furniture or workstation group receiving like finishes/colors will be noted as a Color Scheme. Each Color Scheme shall have a written description of material used. Incorporate descriptions of coordination between furnishings and equipment and facility systems (communication, electrical, mechanical, etc.) Submit the FRID concurrently with architectural design submittals. The FRID may be submitted simultaneously with the BRID, however each must be bound separately.
- (b) Preliminary Submittals: The Contractor shall submit three complete sets of the initial FRID package. All FRID proposals shall be reviewed and commented on by the Government. All accepted materials will be documented. The FRID package will be returned to the contractor. The Interior Designer shall revise the FRID binders after each review and update the FRID to satisfy review comments. Each submittal will follow this method of review until the Government approves the completed FRID package.

- (c) Final Submittal: After approval of the Preliminary Submittal(s), the Contractor shall submit four (4) complete sets of the approved and final package. Any deviations created by the Governments acquisition strategy or implementation will be communicated to the Contractor.

(8) FRID Submittal Format

- (a) This information shall be submitted in 3" or 4" D-ring binders, with 8-1/2" x 11" format, long dimension vertical. Fold out pages (11" x 17" format) may be used for drawings or text only. Foldouts pages shall reduce to 8-1/2" by 11" size. No foldouts on the top or bottom of the pages. Place the project title, base, architectural firm, page number and date on the bottom of each page or module. Drawings displaying entire floor plans with furnishings and equipment may be submitted using the project standards for half size drawings.
- (b) The rigid modules conforming to 8-1/2" x 11" size shall support and anchor all samples. Anchor large or heavy samples with mechanical fasteners, Velcro or double sided foam tape. Rubber cement or glue will not be acceptable.
- (c) Assemble the 8-1/2" x 11" pages and modules in binders. Holes for placement of the modules in the binder shall be 3/8" in diameter. Each binder shall be identified on the outside spine and front cover by title, project number, percentage phase and date.
- (d) Material and finish samples shall indicate true pattern, color and texture. Provide manufacturer and product code information.
- (e) Photographs or colored photocopies of materials are generally not acceptable. However, with pre-approval by the Government, particularly heavy or bulky samples and materials may be presented by clear color photographs, which indicate actual colors and textures. Depictions of entire furniture pieces or workstations may be submitted as photographs.
- (f) Color/fabric boards shall be submitted with the 65% and 95% Building Design submittals in accordance with the SUBMITTALS table provided above. Additional color/fabric boards will only be required if there are substantial changes after the 95% submittal. Minor changes made after the 95% submittal may be made by submitting individual modules (8-1/2" X 11") depicting the change.

(9) Content Sequence of FRID Submittal.

The FRID Binder shall include the following information at each design submittal in this order:

- Title page
- Table of contents
- Design objectives - A statement of design objectives explaining the interior design philosophy of the facility. List design objectives and the proposed method of accomplishing the objectives through furnishings and equipment.

- Furnishing type and finish boards shall be grouped as schemes (i.e. Scheme A, Scheme B, etc.) with each scheme indicating the array of all finishes for a particular room or class of rooms, or building.
- Furniture and equipment layout plans, including furniture suite and/or workstation typicals.
- Furniture and equipment tabulations and schedules for procurement.
- Coordination with building systems.
- Integration and layout of specific furniture package (GFGI) to be provided in UEPH room modules as identified in Section 00860. Plan must show suitability of proposed space to suit the furniture to be provided.

j. Additional Requirements.

(1) Equipment and Fixtures

The Contractor shall furnish equipment and fixture schedules, catalog data, applicable Government or Commercial Specification numbers, and indicate sizes, capacities, manufacturer, model numbers, and manufacturer's warranties for all equipment and fixtures that are permanent. Originals of catalog data shall be submitted in lieu of reproduces or copies to ensure legible data (Note: high quality copies that are clear and totally legible may be provided in lieu of originals after providing originals with the first two sets provided for any one individual addressee).

(2) Additional Topographic Surveys and Soils Information

Any survey and soil information other than provided in this RFP that is obtained by the Contractor shall be submitted for review with the other design data. Topographic survey shall include contour lines of sufficient frequency for development of construction plans. Horizontal and vertical control shall be shown. Soil investigations shall include any boring logs, testing results, or design analysis performed. The Contractor will refer to the Government's Geotechnical Report during design. Although the Government has made borings, it is the Contractor's responsibility to investigate the subsurface soil conditions, ground water table and soil resistivity beneath the actual location of each structure. The Contractor shall use and publish in his design the data determined by his own investigation to verify bearing capacity, foundation design, utility installation, excavation and backfill requirements, and need to perform site dewatering if required. The Contractor shall also verify the existence of potentially expansive soils for use in the foundation design beneath the structure.

(3) Field Trip Report(s)

The electrical, telecommunications and mechanical engineers responsible for the design are required to visit the site and furnish a trip report with the 65% design submittal. During the site visit the responsible engineers shall coordinate with the Contracting Officer to obtain the following scope confirming data from the appropriate base personnel: power system characteristics, communications support items, fire alarm system requirements, EMCS requirements, cathodic protection and any other items necessary for the design of supporting services to the facility. The report shall include names and titles of persons contacted and a brief description of all guidance information or instructions received.

(4) Exterior Color Board(s)

Exterior color boards shall be submitted. Preliminary submittal shall be provided for approval as part of the 65% Building Design per the Submittals table in this section. Final submittal to the same distribution shall be made with the 95% Building Design submittal only if changes have been made since the 65% submittal. Heavy or bulky samples and materials may be presented by clear color photographs, which indicate actual colors and textures. Where special finishes such as architectural concrete or pre-finished metal panels are required, samples of not less than 305 mm (12 inches) square shall be submitted with the board. Boards shall include, where applicable, color samples of integrally colored block, brick, and pre-finished metal roofing and siding. The board shall be 610 mm by 610 mm (24 inches by 24 inches). If more space is needed, more than one board per set may be submitted. The Contractor shall certify that he has reviewed the color boards in detail and that they are in strict accordance with the contract drawings and specifications, except as may be otherwise explicitly stated.

(5) Presentation of Interior and Exterior Architectural Samples.

The Contractor shall provide a briefing for information and Government approval of all Contractor furnished Architectural Samples concurrent with the design review of these materials.

(6) Architectural Rendering

The Contractor shall prepare color renderings illustrating an exterior view of the Barracks building(s) and associated site development. The rendering shall be made at eye level and illustrate in an accurate manner, significant architectural features of the proposed project. The name of the project, installation/location, design firm, and design agency are to be engraved or otherwise professionally applied to a small, black metal or plastic plate adhered to the exterior or the glazing near the bottom center. The following formats are to be provided as part of this work:

- (a) Framed Original Rendering. The original 18" x 22-1/2" color rendering having an overall matted dimension of 20" x 30". The rendering shall be mounted under non-glare acrylic glazing in sturdy (3/4" minimum) flat top black metal or wood frame, 1 inch deep (wall to face) and with a 1/4 inch to 3/16 inch face depending upon the rendering size. The frame material can be obtained from Nielson Frames, but other manufacturers of the same profile and color are acceptable. The rendering shall be matted with #789; Granite mat board by Bainbridge or matching colors by another manufacturer. If double mats are used, then the interior mat shall be black, 3/16 to 1/4 inch wide. Install adjustable devices and picture wire for hanging.
- (b) Unframed Color Print. 16"x20" ektachrome prints of the rendering.
- (c) Framed Color Print. 16"x20" ektachrome prints of the rendering, matted and mounted under non-glare acrylic glazing in sturdy (3/4" minimum) flat top black metal or wood frame. The framed dimension is to be 20"x25".
- (d) 35mm color slides of the rendering (2 each).
- (e) 4"x5" color negatives of the rendering (one each).

- (f) Electronic images on CD-RW in Microsoft Windows BMP format.
- (g) Distribution: The Contractor shall provide reproduction and direct mailing of the rendering along with the 95% design submittal as specified in the table
SPECIFICATIONS AND DRAWINGS DISTRIBUTION.

6.00 DESIGN SUBMITTAL MATERIAL REQUIREMENTS

a. General.

Formal design reviews will be conducted by the Government for:

- (1) 65% Site, Utilities, Building Foundation and All Other Work Design
- (2) 95% Site, Utilities, Building Foundation and All Other Work Design, and 65% Buildings and Landmark Feature Design.
- (3) 95% Barrack/SCB/LMS Building Design.
- (4) 95% Large Company Operations Facility Design.
- (5) 95% Large Battalion HQ Building Design.
- (6) 95% Landmark Feature Design.

Informal review and backcheck of documents will be performed at all other review stages.

For specific content requirements for each percentage stage of design, review the Seattle District A/E Design Guide.

Design submittal schedule and distribution requirements are given in paragraph 3.00 DESIGN REQUIREMENTS. Requirements for preparation of submittal materials are found in paragraph 5.00 PREPARATION OF PROJECT DESIGN DOCUMENTS. Submittal materials required for the design reviews are as indicated herein.

b. Site, Utilities, Building Foundation and All Other Work (65%)

This submittal is provided to verify that site and utility portions of the project have transitioned properly from the proposal. The building design portion of this submittal is intended to confirm the acceptability of building locations. Only building footprint outlines are required at this stage. This submittal shall consist of the following:

(1) Construction Drawings:

Submittal shall include all drawings necessary to fully depict Site, Utilities, and Building Foundations and All Other Work design and construction requirements developed to 65% completion.

(2) Specifications:

Submittal shall include outline or draft specifications for site, utility and building foundations and all other work design developed to 65%. Include an index and general conditions.

(3) Design Analysis and Supporting Data:

- (a) Design analysis with supporting calculation and other data as appropriate to support the 65% site, utility, building foundations design.

(b) Design analysis developed to the extent required to support other design work included in this submittal.

- c. Site, Utilities, Building Foundation and All Other Work (95%), and Buildings and Landmark Feature Design (65%), Submittal.

This submittal is provided to allow the contractor to continue to concentrate initial efforts on the site/utility portions of the project. By allowing this work to be separated, the contractor is given the opportunity to fast track and begin construction on the site/utility work prior to completion of the building designs.

The building design portion of this submittal is intended to insure that the contractor's design is proceeding in accordance with the terms of the solicitation and the contractor's original proposal as well as in a timely manner. This submittal shall consist of the following:

(1) Construction Drawings:

- (a) Submittal shall include all drawings necessary to fully depict Site, Utilities, and Building Foundations and All Other Work design and construction requirements developed to 95% completion.
- (b) Submittal shall include all drawings necessary to fully depict Building Design and Landmark Feature developed to 65% completion.

(2) Specifications:

- (a) Submittal shall include completed specifications for site, utility and building foundations and all other work design developed to 95%.
- (b) Outline or draft specifications for building design, including an index, general conditions and all technical sections.

(3) Design Analysis and Supporting Data:

- (a) Design analysis with supporting calculation and other data as appropriate to support the 95% site, utility, building foundations design.
- (b) Design analysis developed to the extent required supporting the other design work included in this submittal.
- (c) Equipment and Fixture Schedules to support the design work included in this submittal.
- (d) LEED analysis and documentation.

(4) Environmental permits:

Provide permits as required. When environmental permits are not required, the Contractor shall provide a statement with justification to that effect.

(5) Exterior Color Board and BRID/FRID packages, showing colors, materials, textures, finishes, etc. (in accordance with paragraph 5.00).

(6) Annotated 65% review comments and responses.

d. Site, Utilities, Building Foundations, And All Other Work (100%), Submittal.

The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process as well as the original solicitation and the contractor's proposal. The Contractor shall submit the following documents for Review:

(1) Construction Drawings:

The Drawings submitted for review shall include the drawings previously submitted which have been revised and completed as necessary. The Contractor is expected to have completed all of his coordination checks and have the drawings in a design complete condition. The drawings shall be complete at this time including the incorporation of any design review comments generated by the previous design reviews. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction. Shop drawings will not be considered as design drawings. All design shall be shown on design drawings prior to submittal of shop drawings. Incorporate site and utility drawings, as appropriate to describe building designs, into drawing package for this submittal

(2) Specifications:

All specification sections upgraded to 100% to support the completed design.

(3) Design Analysis and Supporting Data:

The Design Analysis shall be in its final form. The Design Analysis shall include all backup material previously submitted and revised as necessary. All design calculations shall be included. The Design Analysis shall contain all explanatory material giving the design rationale for any design decisions which would not be obvious to an engineer reviewing the Drawings and Specifications. Include all Equipment and Fixture Schedules catalog data and manufacturer's warranties for all equipment and fixtures.

(4) Annotated 95% review comments and responses.

All comments shall be incorporated into the design or rebutted to the satisfaction of the CO.

e. (95%) Building Designs and Landmark Feature Submittals (Parts 2, 3, 4 and 5)

- Barrack, Soldier Community and Lawnmower Storage Buildings
- Large Company Operations Facilities
- Large Battalion Headquarters Buildings
- Landmark Feature

The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process as well as the original solicitation and the contractor's proposal. The Contractor shall submit the following documents for Review:

(1) Construction Drawings:

The Drawings submitted for review shall include the drawings previously submitted which have been revised and completed as necessary. The Contractor is expected to have completed all of his coordination checks and have the drawings in a design complete condition. The drawings shall be complete at this time including the incorporation of any design review comments

generated by the previous design reviews. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction. Shop drawings will not be considered as design drawings. All design shall be shown on design drawings prior to submittal of shop drawings. Incorporate site and utility drawings, as appropriate to describe building designs, into drawing package for this submittal

(2) Specifications:

All specification sections upgraded to 95% to support the completed design.

(3) Design Analysis and Supporting Data:

The Design Analysis shall be in its final form. The Design Analysis shall include all backup material previously submitted and revised as necessary. All design calculations shall be included. The Design Analysis shall contain all explanatory material giving the design rationale for any design decisions which would not be obvious to an engineer reviewing the Drawings and Specifications. Include all Equipment and Fixture Schedules catalog data and manufacturer's warranties for all equipment and fixtures.

(4) Rendering – direct mailing as specified

(5) Exterior Color Board and BRID/FRID packages, showing colors, materials, textures, finishes, etc. (in accordance with paragraph 5.00).

(6) Annotated 65% review comments and responses.

All comments shall be incorporated into the design or rebutted to the satisfaction of the CO.

f. (100%) Building Designs and Landmark Feature Submittals (Parts 2, 3, 4 and 5)

- Barrack, Soldier Community and Lawnmower Storage Buildings
- Large Company Operations Facilities
- Large Battalion Headquarters Buildings
- Landmark Feature

The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process as well as the original solicitation and the contractor's proposal. The Contractor shall submit the following documents for Review:

(1) Construction Drawings:

All drawings in 100% complete and final, revised form.

(2) Specifications:

All specification sections in 100% complete and final, revised form.

(3) Design Analysis and Supporting Data:

The Design Analysis shall be in its final form. The Design Analysis shall include all backup material previously submitted and revised as necessary. All design calculations shall be included. The Design Analysis shall contain all explanatory material giving the design rationale

for any design decisions which would not be obvious to an engineer reviewing the Drawings and Specifications. Include all Equipment and Fixture Schedules catalog data and manufacturer's warranties for all equipment and fixtures.

- (4) Exterior Color Board and BRID/FRID packages, showing colors, materials, textures, finishes, etc. (in accordance with paragraph 5.00).
- (5) Annotated 95% review comments and responses. All comments shall be incorporated into the design or rebutted to the satisfaction of the CO.

g. Final Sealed Drawings and Specifications:

Submit final drawings and specifications bearing seal and signature of responsible designer. Submit final comprehensive set of annotated review comments and responses. Submit final design analysis and BRID/FRID documentation. Submit electronic copies of CADD files in native AutoCAD and MicroStation formats, as well as all prepared technical specifications in SpecsIntact format. All text associated with design analysis and BRID/FRID will be submitted in MS Word. All electronic files/media shall be provided on CD-ROM. CD shall include a comprehensive, printable table of contents for all files. Table of contents shall be in MS Word format. Provide copies of all materials as listed in "Specifications and Drawings Distribution" Schedule. This submittal will not be considered complete until the Government confirms that all required files can be opened and plotted (CADD) or printed (specifications and design analysis) with a resulting level of completion and quality consistent with printed copies of products provided in predecessor reviews.

END OF SECTION

SECTION 00860

STATEMENT OF WORK

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CHAPTER 1

DESIGN OBJECTIVES

1-1 SCOPE OF WORK. Design and construction shall comply with the specifications and requirements contained in this Request for Proposals (RFP). The design and technical criteria contained and cited in this RFP establish minimum standards for design and construction quality. The objective of this solicitation is to obtain a campus complex of buildings complete and adequate for assignment as unaccompanied enlisted personnel housing (UEHP) and support facilities. This contract shall consist of the design and construction of barracks, including common support spaces (either within the barracks or in a stand alone "Soldier Community Building (SCB)), for 300 soldiers, company operations facilities (COF), battalion headquarters (BTN HQ), site work, site utilities and associated facilities on Government-owned land at North Fort Lewis, Washington. In addition, the design and construction of a landmark feature is included as an optional item.

1-1.1 Site Area. The sites are described on the RFP drawings included as part of this solicitation and include surface areas of approximately 3.0 hectares (total) on "Echo" block and 5.5 hectares on "Alpha" block. Alpha block is bounded by 41st Division Drive, "A" street, "D" Street and 8th Street. In addition, a small area south of the intersection of 41st Division Drive and "A" Street is included as the site of a landmark feature for Alpha block. Echo block is defined by 17th Street, "A" street, "D" Street and East Drive.

1-1.2 Site Work. Site work includes all design and construction of site features described in the RFP, including but not limited to, site planning, clearing, grading, erosion control, site drainage, utility systems, pavements, pedestrian and vehicular circulation systems, outdoor recreation facilities, landscaping, physical security and force protection measures, fencing, and site furnishings.

1-1.3 Special Utilities and Supplementary Construction. This project also includes a secondary propane/air fuel distribution system to be designed and installed in parallel with a natural gas distribution system.

1-1.4 Demolition Considerations and Requirements. Demolition of buildings will not be a required component of this work. Selective demolition of existing utility systems will be required where these systems extend under the "footprint" of new structures. Demolition of pavements, particularly for the Alpha block will also be required. Tree removal may be required in Alpha block.

1-1.5 Environmental Considerations and Mitigation Requirements. There are no requirements for remediation of site contamination nor will environmental mitigation be necessary.

1-1.6 Terminology. In this RFP the term "Barracks Complex" shall mean the entire group of facilities and site features described by the Statement of Work. "Barracks" and "unaccompanied enlisted personnel housing (UEPH)" may be used interchangeably to describe the buildings with troop housing including the facility identified as the "Soldier Community Building".

1-2 **APPLICABLE CRITERIA.** Applicable design and construction criteria references are listed in Appendix A to the Statement of Work. Criteria shall be taken from the most current references as of the date of issue of the RFP. Referenced codes and standards are minimum acceptable criteria. Administrative, contractual, and procedural features of the contract shall be as described in other sections of the RFP.

1-3 **DESIGN QUALITY.** The main objectives of this solicitation are to obtain a complex of unaccompanied enlisted personnel housing (UEPH) including support facilities and associated site development within funds available, and to maximize design quality. Design quality is achieved through the strict adherence to mission enabling functional requirements, demonstrated environmental sustainability, integration of buildings with the site, selection of building systems for low-cost maintenance and operation, optimization of interior planning and an overall balance of aesthetics and functionality. Creation of facilities with long-term durability and minimal maintenance requirements are also important design quality criteria.

1-4 **DESIGN FREEDOM.** Requirements stated in this RFP are minimums. Innovative, creative, or cost-saving proposals, which meet or exceed these requirements are encouraged and will be considered more favorably. Designs may incorporate factory fabricated components or modules. However, offerors are cautioned to carefully note and incorporate all mandatory design criteria and regulations related to military construction, such as force protection and security standards, that must be incorporated in any design.

1-5 **ENERGY AND RESOURCES CONSERVING FEATURES.** Public Law 102-486, Executive Order 12902, and Federal Regulations 10 CFR 435, require federal buildings to be designed and constructed to reduce energy consumption in a life cycle, cost-effective manner using renewable energy sources when economical. Products designed to conserve energy and resources by controlling the amounts of consumed energy or by operating at increased efficiencies should be considered. Minimum requirements for this project are listed in the Statement of Work.

1-6 **INSTALLATION DESIGN GUIDE.** Design of this project shall incorporate the design guidance and criteria contained in the Fort Lewis Installation Design Guide, excerpts of which are contained in attachment 9 to this Statement of Work.

1-7 **ACCESSIBILITY REQUIREMENTS.** All areas and facilities required to be accessible to physically disabled persons shall conform to the Uniform Federal Accessibility Standards (UFAS) Federal Standard 795, and the Americans With Disabilities Act Accessibility Guidelines (ADAAG). Able-bodied military personnel shall occupy UEPH living units, thus provisions for the disabled are not required within the living units. Barrack common support spaces (lobby, mailroom, mailboxes, toilet rooms, etc) and corridors accessing these shall be accessible. It is not necessary to provide accessibility for the disabled within corridors accessing only barracks room modules. Access for the disabled is not required at the COF's on either the first or second floors. However, incorporation of accessible features is encouraged wherever possible. All areas of the Battalion Headquarters building shall be accessible and fully compliant with the referenced standards. The following specific areas shall also be accessible:

1-7.1 Areas that may be used by non-military army or contractor employees or visitors. Specific areas are indicated in the Statement of Work.

1-7.2 Accessible visitor and non-military employee parking spaces near UEPH and other buildings as indicated in Chapter 3 of the Statement of Work.

1-7.3 A minimum of one accessible pedestrian route linking accessible parking areas with accessible building entrances.

1-8 **FORCE PROTECTION & ANTI-TERRORISM CONSIDERATIONS.** Project design and construction shall comply with UFC 4-010-01 Department of Defense Minimum Antiterrorism Standards for Buildings and UFC 4-010-10 Department of Defense Minimum Antiterrorism Standoff Distances for Buildings, excerpts of which are contained in an attachment to the Statement of Work. Offerors are cautioned to read the Antiterrorism Standards carefully with consideration of their specific applicability to this project. In particular review the requirements for window construction, and the analysis requirements for progressive collapse prevention. Further clarification of the analysis requirements for progressive collapse prevention is provided in Attachment 10, 'Progress Collapse Analysis Guidelines'.

1-9 **ORGANIZATIONAL STRUCTURE.** The barrack facilities designed and constructed under this solicitation will be occupied by enlisted soldiers. Each soldier is assigned to a company. Company operations facilities (COF) will accommodate the day-to-day functions of the company, including storage of the company's gear and arms, locker/shower facilities for use by soldiers after physical training, and spaces for administration and command of the company. Company operations facilities will be used by enlisted personnel residing in the UEPH facilities, enlisted personnel living in family housing areas, enlisted personnel living off-post and non-enlisted personnel.

A number of companies comprise a battalion. Battalion headquarters (BTN HQ) house the administrative and command functions of the battalion, and provide training and support areas for soldiers. A brigade is composed of a number of battalions. Brigade headquarters house the administrative and command functions of the brigade.

1-10 **SUSTAINABLE DESIGN.** Fort Lewis has a strong commitment to the incorporation of sustainable design strategies and practices into all facilities and operations on the installation. Review Chapter 13 of this section for discussion of the installation's sustainability goals as well as proposal and project requirements. To measure the level of successful sustainable design integration, the LEED project checklist will be the verification metric. A very important design objective (and indicator of contractor success) for the FY 04 Whole Barracks Renewal project is to maximize the incorporation of sustainable design features as documented by the LEED credits score. While a "Silver" rating is the minimum design requirement, increasing the credit points total or identified certification category as permitted by available project budget and schedule is encouraged.

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CHAPTER 2

FUNCTIONAL AND AREA REQUIREMENTS

2-1 GENERAL REQUIREMENTS

2-1.1 **Gross building area definition.** Gross building area is measured to the outside face of exterior enclosure walls. Gross area includes floor areas, penthouses, mezzanines, and other spaces as follows:

2-1.1.1 **Areas calculated as half space.** Gross area includes one-half the area of exterior covered areas such as balconies, entries, loading platforms, breezeways, exterior corridors, and porches. Exterior covered areas are measured from the face of the enclosure wall to the edge of the covered area served. Stairs (enclosed or open) and elevator shafts count as half space for each floor they serve. In UEPH buildings only, interior public corridors will be calculated as half space (circulation spaces *within* the living unit will be calculated as full area).

2-1.1.2 **Excluded space.** The following spaces are excluded from gross area calculations: Occupied attic areas where average clear height does not exceed 2 130 mm; crawl spaces; exterior uncovered loading platforms; open courtyards; normal roof overhangs and soffits for weather protection; uncovered ramps and steps; utility tunnels; raceways; mechanical equipment platforms and catwalks.

2-1.1.3 **Building Code Area.** The exclusions and half space allowances permitted above are to be used only for calculation of nominal gross areas to verify conformance with the Statement of Work maximum authorized gross building areas. All building and life safety code analysis shall be performed using the actual floor areas consistent with the measurement standards of each code.

2-1.2 **Gross area limitations.** Maximum authorized gross building areas for each facility are included in this paragraph. Proposals that exceed authorized gross area limitations may be considered non-conforming. All areas are expressed in square meters:

<u>FACILITY</u>	<u>Per Building</u>	<u>Project Total</u>
UEPH Barracks*	na	10,200
Lawnmower Stor. /Recycling/Dumpster Buildings (4 req.)	11	45
Large Company Operations Facilities (3 required)	1,860	5,580
Large Battalion Headquarters Building (2 required)	1,524	3,048

* The barracks area indicated is consistent with the maximum gross project area of 34 m² per occupant (300) permitted by regulation. Barracks constructed for this project shall be no more than 3 stories to be consistent with existing North Fort barracks complexes.

2-1.3 **Net area definition.** Net area is measured to the inside face of the room or space walls.

2-1.4 Net Area Requirements. Net area requirements for programmed spaces are included in this chapter. If net area requirements are not specified in the Statement of Work, the space shall be sized to: accommodate the required function, comply with code requirements, comply with overall gross area limitations and other requirements of the RFP (for example, area requirements for corridors, stairs, and mechanical rooms will typically be left to the discretion of the offeror).

2-1.5 Functionality. Rooms shall be sized and arranged for efficient use, circulation, and furniture placement.

2-1.6 Finish Requirements. Room finishes stated in the following paragraphs are preferred minimums; finish selections are not limited to those listed.

2-1.7 Furniture Requirements. Free-standing (non-permanent) furnishings shall not be provided by the offeror for any of the facilities developed by this project. However, design effort associated with the preparation of Building Related Interior Design (BRID) and Furniture Related Interior Design (FRID) documents is required. The offeror shall design the buildings to accommodate furnishings that would typically occur in a given space; or shall design for furniture requirements that are specifically identified by this RFP. Careful coordination with Fort Lewis is required throughout the design and construction period to facilitate the installation of furnishings by others.

2-2 UEPH FACILITIES FUNCTIONAL AND AREA REQUIREMENTS. The UEPH building(s) shall consist of living units (room modules), common areas, and support spaces. Each living unit shall be designed to be occupied by two soldiers. Living units designed for other than two occupants are not permitted. Provide 150 Two-person living units to house a total of 300 enlisted personnel in grades E1 through E6. Living units, common areas and support spaces may comprise a single building, or multiple buildings. Total gross building area of UEPH buildings shall not exceed 10 200 square meters (m^2). Maximum gross area is limited to 34 m^2 per soldier; this includes living units, common areas, and support spaces in the UEPH buildings.

The successful design scheme will maximize the area of the living units, particularly the “Living /Sleeping” room, provide the required support and common areas, and strictly comply with the overall gross building area limitation.

Building spaces and areas shall be as follows:

2-2.1 Areas Comprising the Two-Person Living Unit (Room Module). Each Two-Person living unit, or module, will contain two individual living/sleeping rooms with closets, a shared service area with kitchenette, and a shared bathroom. Spaces are as follows.

2-2.1.1 Individual Living/Sleeping Room. Minimum net area 13 m^2 . Maximum net area 17 m^2 . Provide two per module.

2-2.1.1.1 Function: Private bedroom and living space for one enlisted person.

2-2.1.1.2 Adjacency requirements: Adjacent to service area and closet. Living/sleeping room shall be entered from service area, or the public interior corridor. Provide 750 mm wide door between service area and living/sleeping room. If living/sleeping room is entered directly from interior corridor, provide 900 mm wide entry door swinging into room.

2-2.1.1.3 Furnishings/Fixtures/Equipment: Design the room to accommodate, the following furnishings:

- one twin bed with headboard and footboard (1 020 mm x 2 083mm)
- one entertainment center for occupant's television and sound system (864 mm wide x 635 mm deep x 1 930 mm high)
- one chest of drawers (712 mm wide x 458 mm deep x 661 mm high)
- one nightstand (485 mm wide x 435 mm deep x 535 mm high)
- one desk (1 524 mm wide x 762 deep (with keyboard tray retracted) x 762 mm high) and
- one desk chair (500 mm wide x 535 mm deep x 851 mm high)

2-2.1.1.4 Minimum Finishes:

- Floor: vinyl composition tile (carpeting is prohibited)
- Base: wood or resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted underside of precast concrete structural floor planks

2-2.1.1.5 Other requirements:

- Living/sleeping room shall have at least one exterior operable window with insect screen. Window shall meet egress requirements of NFPA 101 and International Building Code. Window shall not be located adjacent to an exterior corridor or breezeway.
- Door between service area and living/sleeping room shall have Unican 1000 series (1021B) lockset (living/sleeping room is secure side). If provided, door between public corridor and living/sleeping room shall have mortise dormitory function (F13) lockset. Any door accessing living/sleeping room shall be equipped with view port.
- Provide minimum of two combination telephone/data outlet in each Living /Sleeping room. Provide minimum of two cable television outlet in each Living/Sleeping room. Coordinate outlet locations with furniture arrangement. Refer to Chapter 9 Electrical Systems

2-2.1.2 **Closet.** Minimum net area 3 m². Provide one closet per living/sleeping room.

2-2.1.2.1 Function: Private walk-in closet for clothing and storage of boxes and field gear.

2-2.1.2.2 Adjacency requirements: Adjacent to living/sleeping room. Provide minimum 700 mm wide door between living/sleeping room and closet. Door shall swing out of closet to preserve maximum amount of useable floor area within closet. Locate door to minimize loss of functional wall area in living/sleeping room.

2-2.1.2.3 Furnishings/Fixtures/Equipment (FFE): Provide minimum 2.5 linear meters of clothes rod and storage shelf.

2-2.1.2.4 Minimum Finishes:

- Floor: vinyl composition tile (carpet is prohibited)
- Base: wood or resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted underside of precast concrete structural floor planks.

2-2.1.2.5 Other requirements: Door shall have passage function (F75) latchset, and be equipped with a hasp/staple or staple pair (preferred) so the occupant can provide own padlock to secure the closet. Hasp and staple hardware shall be quality consistent with other module door hardware. Fence gate type hardware is unacceptable. When hasp and/or staples are not in use, they shall not interfere with door operation.

2-2.1.3 **Service Area.** Provide one per module.

2-2.1.3.1 Function: Circulation space, food preparation area, eating area and laundry for occupants.

2-2.1.3.2 Adjacency requirements: Adjacent to living/sleeping rooms and bathroom. If service area is entered from public corridor provide 900 mm wide entry door swinging into room.

2-2.1.3.3 Furnishings/Fixtures/Equipment: Provide (except for items noted as government furnished and government installed (GFGI)) and design the room to accommodate the following:

- Refrigerator-freezer (minimum 9 total cubic feet) (GFGI).
- Microwave oven (min .9 cubic feet, 800 watts) composite with refrigerator (GFGI) or mounted under wall cabinets.
- Electric four burner smooth surface cooktop, with separate self-cleaning wall oven or electric drop in range with smooth surface cooktop and self-cleaning oven.
- Range exhaust hood with ducted exterior exhaust.
- Minimum 1 500 linear mm of 600 mm deep kitchen base cabinets and countertop (including cooktop/range width). Base cabinets shall have minimum of two 300 mm wide drawers.
- Minimum 2 100 linear mm of 300 mm deep wall cabinets. Wall cabinets shall be minimum 600 mm high; provide 600 mm clear between countertop and bottom of wall cabinets at sink.
- Plastic laminate countertop with side and backsplashes at walls.
- Single compartment, stainless steel kitchen sink with food strainer/stopper, minimum inside dimensions 400 mm x 400 mm x 175 mm deep, with chrome-plated, single handle, washerless mixing faucet (refer to Chapter 8).
- One dining table for two persons, 750 mm square x 725 mm high with two armless dining chairs (if space permits) (GFGI). Table may be designed to fold against or into wall (if table is permanently attached to the wall it becomes a contractor furnished item – CFI).
- Fire extinguisher (GFGI) mounted inside base cabinet.
- Stacked washer / dryer unit (GFGI). Normal size 690 mm W X 920 mm D X 1850 mm H. Gas dryer and electric washer. Provide ducted to exterior dryer exhaust.

2-2.1.3.4 Minimum Finishes:

- Floor: vinyl composition tile (carpet is prohibited)
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster
- Wall area between countertop and wall cabinets: ceramic tile, plastic laminate, or color coordinated back wall shield (if unitized kitchen is used)
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted underside of precast concrete structural floor planks

2-2.1.3.5 Other requirements: At wall areas around dining table provide chair rail or similar wall protection to protect walls from chair and table impact. It is desirable, but not required, to have exterior window in room. Window shall not be located adjacent to an exterior corridor. Door between public corridor and service area (entry door into module) shall have mortise dormitory function (F13) lockset and view port.

2-2.1.4 **Bathroom.** Provide minimum of one bathroom per module.

2-2.1.4.1 Function: Bathing and toilet facilities for either occupant; separate storage for both occupants' bath articles.

2-2.1.4.2 Adjacency requirements: Adjacent to service area or interior hallway. Provide 600mm minimum width door between bathroom and service area or hallway.

2-2.1.4.3 Furnishings/Fixtures/Equipment (FFE): Provide and design the room to accommodate the following:

- Lavatory shall be minimum 475 mm x 475 mm self-rimming vitreous china, or cast-filled acrylic or solid surfacing material integrally molded to countertop.
- Chrome-plated washerless faucet with pop-up drain (refer to Chapter 8).
- Countertop shall be minimum 900 mm wide cast-filled acrylic, acrylic solid surfacing material, or plastic laminate with integrally molded, 100 mm high coved backsplash and 100 mm high side splash at side walls.
- Plastic laminate surfaced vanity base cabinet with hinged door(s) and minimum two 225 mm wide drawers.
- 6 mm thick x minimum 1 050 mm high mirror glass, full width of vanity countertop, with wall mounted vanity light fixture above mirror (refer to Chapter 9).
- Two recessed or semi-recessed medicine cabinets, two soap holders, two toothbrush/tumbler holders.
- Wall or floor mounted toilet with full seat and seat cover (lid).
- Bathtub, chrome-plated brass showerhead, and anti-scald single-handle mixing valve with faucet (refer to Chapter 8).
- Two minimum 600 mm long towel bars mounted on walls outside tub/shower enclosure,
- Two wall mounted soap holders in the tub/shower
- One door mounted robe hook with two hooks
- Wall mounted retractable clothesline across tub/shower.
- Mildew-resistant vinyl shower curtain with stainless steel curtain hooks and chrome-plated brass shower curtain rod.
- Single roll toilet tissue dispenser.

2-2.1.4.4 Minimum Finishes:

- Floor: ceramic tile or seamless resinous floor preferred (carpet is prohibited)
- Base: ceramic tile sanitary cove base or coved resinous base
- Walls: painted water-resistant gypsum wallboard or painted veneer plaster, or ceramic tile, or ceramic tile wainscot. Ceramic tile mounted on cementitious backerboard.
- Shower/tub enclosure walls shall be full height ceramic tile, solid surfacing or material with equivalent scratch-resistance, water-resistance, and durability.
- Ceiling: painted exterior gypsum soffit board, or painted veneer plaster, painted Portland cement plaster, or painted underside of precast concrete structural floor planks.

2-2.1.4.5 Other requirements: HVAC system shall exhaust bathroom air to the exterior; refer to Chapter 10. Door shall have privacy function (F76) lockset and be insulated for sound.

2-2.1.4.6 Alternative Lavatory locations: In lieu of lavatory location in bathroom, lavatory and vanity cabinet may be located adjacent to the Service Area, or a lavatory and vanity cabinet may be provided within each living/sleeping room.

2-2.1.5 **Module Mechanical Area.** Mechanical units for heating and ventilation shall be located in separate mechanical closets, accessible from the public corridor. Refer to Chapter 10. The following requirements apply:

2-2.1.5.1 Function: Houses HV unit for the module. Room shall not be used for storage or any purpose not related to the mechanical system. Access will be limited to maintenance personnel.

2-2.1.5.2 Adjacency requirements: Adjacent to and accessible only from exterior or public corridor.

2-2.1.5.3 Furnishings/Fixtures/Equipment: Provide mechanical system. Refer to Chapter 10.

2-2.1.5.4 Minimum Finishes:

- Floor: sealed concrete
- Base: none required
- Walls: painted gypsum wallboard, painted veneer plaster, or painted concrete masonry units.
- Ceiling: painted gypsum wallboard, or painted veneer plaster, or painted underside of precast concrete structural floor planks

2-2.1.5.5 Other requirements: Provide swinging door (or door pair) sized to allow maintenance and removal of mechanical unit(s). Door(s) shall have storeroom function (F86) lockset. Room and door construction shall comply with fire and smoke separation requirements of applicable codes.

2-2.2 One-Person Living Unit (Room Module). One-Person living units, or modules, are prohibited in this project.

2-2.3 UEPH Common Areas. Common areas shall be located within a building containing living units. A separate free standing building, referred to as the "Soldier Community Building" (SCB) in previous designs, is prohibited in this project. Entry lobby, CQ station, toilet rooms, mail room, and public telephones should be grouped together at the main entrance to the barracks, adjacent to visitor parking area. Spaces are as follows:

2-2.3.1 Entry Lobby. Provide one.

2-2.3.1.1 Function: Primary entry point into the UEPH facility and waiting area for visitors.

2-2.3.1.2 Adjacency requirements: Adjacent to main entry to UEPH facility. It is preferable to enter lobby area from two sides of building. Any waiting area should be near the laundry room.

2-2.3.1.3 Furnishings/Fixtures/Equipment: Provide and design space to accommodate a minimum of:

- six upholstered modular waiting-area seating units (GFGI)
- two modular end table units (GFGI).
- ceiling or wall mounted television bracket with locking tray. Arrange seating to allow viewing of television (TV is government furnished, government installed).
- wall mounted electric water coolers (standard and accessible heights).

2-2.3.1.4 Finishes:

- Floor: porcelain tile, or quarry tile.
- Base: porcelain tile or quarry tile, or stained wood base.
- Walls: painted gypsum wallboard, or painted veneer plaster.
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, painted veneer plaster, painted Portland cement plaster, or painted underside of precast concrete structural floor planks.

2-2.3.1.5 Other requirements: Meet all ADA accessibility requirements. Provide conduit and junction box for cable television service to wall or ceiling mounted television. Provide entrance door pair of at least 1800 mm combined width.

2-2.3.2 Entry Vestibules. Optional at each exterior entrance to lobby area (or SCB). If an entry vestibule is not provided, a recessed entry mat is still required.

2-2.3.2.1 Function: Primary entry point into the UEPH facility; weather protection for interior spaces.

2-2.3.2.2 Adjacency requirements: Adjacent to lobby.

2-2.3.2.3 Furnishings/Fixtures/Equipment: No requirement.

2-2.3.2.4 Finishes:

- Floor: Provide recessed entry mat full depth of vestibule x full width of doors; porcelain tile, or quarry tile in remainder of room. Provide entry mat at exterior entrance doors even if vestibule entry is not provided.
- Base: porcelain tile or quarry tile
- Walls: Match exterior wall finish material (preferred), or painted gypsum wallboard, or painted veneer plaster
- Ceiling: painted gypsum wallboard, painted veneer plaster, painted Portland cement plaster, or painted underside of precast concrete structural floor planks.

2-2.3.2.5 Other requirements: Meet all ADA accessibility requirements.

2-2.3.3 **Charge of Quarters (CQ) Station.** Provide one area, approximately 6.5 m²

2-2.3.3.1 Function: Reception area for visitors; duty desk for barracks manager. Position is occupied on a 24-hour basis.

2-2.3.3.2 Adjacency requirements: Adjacent to lobby and main entry. Locate to allow observation of lobby, main entry, public telephones, and common outdoor areas.

2-2.3.3.3 Furnishings/Fixtures/Equipment: Provide and design the room to accommodate the following:

- reception desk and counter (built-in casework) minimum 2 450 mm long, to accommodate computer and monitor (not in contract), security system monitor, telephone and writing area. Provide built-in communication and power receptacles. Desk shall have minimum two legal size file drawers and one pencil drawer. All drawers shall have locks. Desk components shall have plastic laminate or stained wood finish. Work surfaces and counters shall be solid surfacing material or plastic laminate.

2-2.3.3.4 Finishes: Match entry lobby.

2-2.3.3.5 Other requirements: Meet all ADA accessibility requirements. Entire CQ Station shall be capable of being secured behind a door, wall, rolling grille and/or window when the occupant is absent.

2-2.3.4 **Main Stair.** Provide as required to allow circulation from lobby to all upper floors, and to comply with applicable code egress requirements. If allowable by applicable code, it is preferable to provide a main (monumental) stair that is open to the lobby.

2-2.3.4.1 Function: Central vertical circulation for the building. Means of egress if so designed.

2-2.3.4.2 Adjacency requirements: Adjacent to entry lobby. Connects all floors of the building.

2-2.3.4.3 Furnishings/Fixtures/Equipment (FFE): Stairs shall be steel construction with concrete-filled treads, or cast-in-place concrete construction. Open risers are prohibited. Provide decorative trim and detailing to integrate stair into lobby design. Provide metal

railing or other guardrail system between open stair and adjacent spaces. Provide mechanical and electrical systems to comply with applicable codes.

2-2.3.4.4 Finishes:

- Landing floors: porcelain tile, quarry tile, or resilient tile.
- Base: porcelain tile, quarry tile, or resilient cove base.
- Treads: porcelain tile, quarry tile, or resilient treads. Provide slip-resistant nosing if tile is used.
- Risers: painted steel, porcelain tile, or quarry tile
- Walls: Impact resistant gypsum wallboard with vinyl wallcovering or painted finish; Prefinished or painted metal railings.
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, painted veneer plaster, painted Portland cement plaster, or painted underside of precast concrete structural floor planks

2-2.3.4.5 Other requirements: Meet all ADA accessibility requirements.

2-2.3.5 **Toilet Rooms.** Provide one for each gender.

2-2.3.5.1 Function: Single occupant, accessible toilet rooms for use by visitors and CQ.

2-2.3.5.2 Adjacency requirements: Adjacent to entry lobby and CQ station.

2-2.3.5.3 Furnishings/Fixtures/Equipment: Provide in each room.

- Floor or wall mounted toilet
- Urinal in Men's (preferred)
- Wall hung lavatory
- Recessed multifold paper towel dispenser/trash receptacle
- Two roll toilet tissue dispenser
- Sanitary napkin disposal in Women's
- Liquid soap dispenser
- Wall mounted mirror over lavatory
- Wall mounted grab bars at toilet per ADAAG.

2-2.3.5.4 Finishes:

- Floor: Ceramic tile, or porcelain tile
- Base: Coved Ceramic tile, or porcelain tile
- Walls: Ceramic tile, or ceramic tile wainscot and painted water-resistant gypsum wallboard
- Ceiling: painted gypsum wallboard, painted veneer plaster, painted Portland cement plaster, or painted underside of precast concrete structural floor planks.

2-2.3.5.5 Other requirements: Meet all ADA accessibility requirements. Entry door shall have privacy function (F76) lockset.

2-2.3.6 **Janitor Closet.** Provide one on each floor of building. Minimum area 2.8 m² each.

2-2.3.6.1 Function: Sink, and storage of cleaning supplies.

2-2.3.6.2 Adjacency requirements: Near toilet rooms on first floor; preferred location on upper floors is adjacent to laundry areas (if laundry is dispersed).

2-2.3.6.3 Furnishings/Fixtures/Equipment: Provide:

- Floor mop sink
- Mop rack for three mops,
- Minimum 1 850 linear mm of wall mounted stainless steel shelving.

2-2.3.6.4 Finishes:

- Floor: ceramic tile, or sealed concrete
- Base: coved ceramic tile base, or resilient cove base (concrete floor)
- Walls: painted water-resistant gypsum wallboard, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted underside of precast concrete structural floor planks.

2-2.3.6.5 Other requirements: door shall have classroom function (F84) lockset. Provide power outlet.

2-2.3.7 **Vending Area.** Provide minimum one area on ground floor. Additional vending areas with ice machine-dispensers may be provided at upper floors as a proposed betterment over the minimum requirement.

2-2.3.7.1 Function: Space for soft drink and snack vending machines (3 vending machines minimum, NIC), and dispensing type ice machine.

2-2.3.7.2 Adjacency requirements: Near entry lobby.

2-2.3.7.3 Furnishings/Fixtures/Equipment: Provide and design the room to accommodate the following:

- One dispensing type ice cube machine designed for hotel ice bucket filling, capable of producing minimum 250 lbs. of regular ice cubes in 24 hours, with 180 lb. storage capacity. Provide ice machine manufacturer's automatic cleaning system to clean and sanitize the water distribution system of the machine at scheduled intervals. Ice machine shall be Energy Star compliant. Provide water supply and drain connections per ice machine manufacturer's requirements.
- Space to accommodate four full-size soft drink and snack vending machines (government furnished, government installed). Provide water supply and waste connections for 1 vending machine.

2-2.3.7.4 Finishes: Match entry lobby or adjacent corridor or breezeway.

2-2.3.7.5 Other requirements: First floor vending areas shall meet ADA accessibility requirements. Provide floor drain near ice machine(s); locate drain outside of traffic area. If door is provided, door shall have classroom function (F84) lockset. Provide dedicated power outlets and telephone wall jacks for each vending machine.

2-2.3.8 Public Telephone Area. Provide one area.

2-2.3.8.1 Function: Pay telephones for barracks occupants and visitors.

2-2.3.8.2 Adjacency requirements: Near lobby and CQ station.

2-2.3.8.3 Furnishings/Fixtures/Equipment: Provide and design the room to accommodate the following:

- Two pay telephones and telephone stations. Offeror shall contract with local telephone company or other telephone service provider to furnish and install pay telephones; rate charged for calls shall not exceed the average prevailing rate in the local off-post community. Offeror shall coordinate with AAFES on installation requirements for payphones.
- Telephone station shall be wall enclosure type with divider panels to enhance acoustical privacy. Enclosure shall have built in shelf for phone book. One station shall meet all ADA requirements for accessibility. Provide capability to mount portable TDD at accessible station. Materials shall be vandal resistant and easily cleaned.

2-2.3.8.4 Finishes: Match entry lobby.

2-2.3.8.5 Other requirements: Meet ADA accessibility requirements.

2-2.3.9 Mail Room. Provide one. Room shall be sized to allow access to all rear-loading mailboxes (preferred). Alternative is to provide front loading/front receipt mailboxes remote from the mailroom. Provide minimum 1 850 mm clear between back of mailboxes and any obstructions. To comply with force protection minimum standards, locate away from occupied areas and on perimeter walls. Avoid routing key utilities (including communications, fire detection and alarm, water mains, etc.) through or on common walls to mail room. All walls shall be full height and tightly sealed. Doors accessing the room shall be fully gasketed.

2-2.3.9.1 Function: Secure area for sorting incoming mail and distributing to rear-loading mailboxes (if used), holding area for parcel awaiting pick up.

2-2.3.9.2 Adjacency requirements: Near CQ station and entry lobby. To comply with force protection minimum standards, locate mailroom on perimeter of building.

2-2.3.9.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- Plastic laminate-faced sorting counter (built-in casework) 760 mm deep x minimum 2 450 mm long x 900 mm high.
- United States Postal Service approved mailbox for each resident of the facility, vertical or horizontal (if rear access used) with key type cylinder lock.
- One outgoing mail collection box accessible from public corridor.

2-2.3.9.4 Finishes:

- Floor: vinyl composition tile, or sealed concrete
- Base: resilient cove base

- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted underside of precast concrete structural floor planks.

2-2.3.9.5 Other requirements: Provide 900 mm wide door into room; door shall have mortise dormitory function (F13) lockset. Room shall meet ADA requirements for accessibility. Design shall comply with United States Postal Service and Army Postal regulations. Entire room shall have expanded metal fabric in walls and ceiling between gypsum wallboard and studs/joists to provide additional security from intrusion.

2-2.3.10 **Mailbox Access Area.** Provide an area from which residents may access mailboxes to pick up their mail. Access may be from an interior lobby, corridor or dedicated space. Rear loading mailboxes will be loaded from the interior of the mail room (preferred). Alternative is front loading/front receipt mailboxes that may be remote from the mail room. If UEPH is a single building, all mailboxes shall be grouped. If multiple buildings are used, all mailboxes shall be grouped in one common area or mailboxes for occupants of a given building shall be grouped in that building. Mailbox access area must be an interior space.

2-2.3.10.1 Function: Mail pickup area for residents.

2-2.3.10.2 Adjacency requirements: Adjacent to mail room (if rear loading). Located on ground floor, near CQ station and entry lobby.

2-2.3.10.3 Furnishings/Fixtures/Equipment: Provide and design room/area as required to accommodate:

- Plastic laminate-faced counter (built-in casework) minimum 300 mm deep x minimum 1 500 mm long x 900 mm high.
- United States Postal Service approved mailbox for each resident of the facility, vertical or horizontal front loading clusters (unless provided as part of Mail Room) with key type cylinder lock.
- Built in waste container for discarded mail.

2-2.3.10.4 Finishes: Interior: match entry lobby.

2-2.3.10.5 Other requirements: If access area is provided adjacent to corridor, design to maintain adequate clearance for circulation. Design shall comply with United States Postal Service regulations.

2-2.3.11 **Laundry Area(s).** Common laundry areas, while used in previous designs, are prohibited in this project. Each room module shall have space for a stacked washer and dryer.

2-2.3.12 **Mud Room.** Area to have outside door. Provide a minimum of one Mud Room located on ground floor. Locate boot wash facility at exterior, adjacent to Mud Room entrance.

2-2.3.12.1 Function: Large laundry sinks for cleaning soldier's clothing and gear following field exercises.

2-2.3.12.2 Adjacency requirements: Locate Mud rooms adjacent to other barracks common areas. For noise considerations, it is preferable not to locate Mud rooms adjacent to living units (shared walls).

2-2.3.12.3 Furnishings/Fixtures/Equipment: Provide and design the room to accommodate:

- Provide plastic laminate or solid surface shelf (minimum size: 1200 mm x 450 mm) above laundry sinks.
- Provide a minimum of 6 large/deep laundry sinks (leg mounted) constructed of durable, high impact capacity materials. Waste drains shall have easy access for debris/sediment cleanout. Include a common sediment trap / sump.

2-2.3.12.4 Finishes:

- Floor: porcelain tile, quarry tile, or sealed concrete
- Base: porcelain tile or quarry tile
- Walls: painted water resistant gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, painted Portland cement plaster, or painted underside of precast concrete structural floor planks

2-2.3.12.5 Other requirements:

- Conceal utilities from view, but provide easy maintenance access.
- Provide a floor drain; locate outside of traffic area.
- Partitions around Mud rooms shall have minimum STC of 58, and shall extend to underside of floor above.
- Provide 900 mm wide exterior door into room. Door shall have classroom function (F84) locksets (or exit devices if required by applicable code).

2-2.4 **UEPH Support Areas.** Support areas include circulation spaces such as stairs and corridors; mechanical, electrical, and communications spaces; and boot wash facilities. Spaces are as follows:

2-2.4.1 **Interior Corridor.** Provide as required to allow circulation to building spaces, and comply with applicable code egress requirements. Due to security, climate, and force protection concerns, interior corridors are the preferred means of circulation between living units and other building spaces with a given building. Multiple buildings without weather protection between buildings is an acceptable scheme.

2-2.4.1.1 Function: Circulation and means of egress.

2-2.4.1.2 Adjacency requirements: Adjacent to vertical circulation.

2-2.4.1.3 Furnishings/Fixtures/Equipment (FFE): Provide mechanical and electrical systems to comply with applicable codes. Provide fire extinguishers in semi-recessed fire extinguisher cabinets to comply with applicable codes.

2-2.4.1.4 Finishes:

- Floor: porcelain tile, quarry tile, vinyl composition tile, or integrally stained concrete.
- Base: porcelain tile, quarry tile, or resilient cove base.

- Walls: impact resistant gypsum wallboard with vinyl wallcovering or painted finish.
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, painted veneer plaster, painted Portland cement plaster, or painted underside of precast concrete structural floor planks.

2-2.4.1.5 Other requirements: Meet ADA requirements for accessibility.

2-2.4.2 **Interior Stairs.** Provide as required to allow circulation to upper floors of the building, and to comply with applicable code egress requirements. Due to security, climate, and force protection concerns, interior stairs are required within buildings.

2-2.4.2.1 Function: Circulation and means of egress.

2-2.4.2.2 Adjacency requirements: Adjacent to corridors. Connects all floors of the building.

2-2.4.2.3 Furnishings/Fixtures/Equipment (FFE): Stairs shall be steel construction with concrete-filled treads, or cast-in-place concrete construction. Open risers are prohibited. Provide mechanical and electrical systems to comply with applicable codes.

2-2.4.2.4 Finishes:

- Landing floor: porcelain tile, quarry tile, resilient tile, vinyl composition tile, or sealed concrete.
- Base: porcelain tile, quarry tile, or resilient cove base.
- Treads: porcelain tile, quarry tile, resilient treads, or sealed concrete. Provide slip-resistant nosing if tile is used.
- Risers: painted steel, porcelain tile, quarry tile, or sealed concrete.
- Walls: painted impact resistant gypsum wallboard, or painted concrete masonry units.
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, painted veneer plaster, painted Portland cement plaster, or painted underside of precast concrete structural floor planks

2-2.4.2.5 Other requirements: Stairs shall comply with disabled accessibility requirements of applicable codes and the ADA. Railings shall be painted galvanized steel, or prefinished aluminum.

2-2.4.3 **Exterior Stairs.** Provide as required for access to ground floor of UEPH only. Ground floor of UEPH buildings (with room modules) shall be 1 000 mm above grade for increased privacy and security. Due to security, climate, and force protection concerns, exterior (exposed to weather) stairs are not permitted between floors. Exterior stairs are not required to be covered.

2-2.4.3.1 Function: Circulation and means of egress.

2-2.4.3.2 Adjacency requirements: None.

2-2.4.3.3 Furnishings/Fixtures/Equipment (FFE): Exterior stairs shall be cast-in-place concrete construction. Open risers and metal grating treads are prohibited.

2-2.4.3.4 Finishes: Landing floor: sealed concrete with slip-resistant finish texture.

- Base: none
- Treads: Sealed concrete with slip-resistant finish texture. Provide cast-in-place slip-resistant nosing.
- Risers: Sealed concrete.
- Walls: exterior wall materials at buildings, concrete where serving guardrail function.
- Ceiling: painted exterior gypsum soffit board, painted Portland cement plaster, or painted underside of concrete structure above

2-2.4.3.5 Other requirements: Stairs shall comply with accessibility requirements of applicable codes and the ADA. Railings shall be prefinished/anodized aluminum. Ferrous metals, including galvanized steel are prohibited.

2-2.4.4 **Mechanical Areas.** Provide dedicated interior spaces for plumbing, fire protection, and HVAC equipment. Location of mechanical equipment on the exterior of buildings or above grade on site is prohibited. Size and locate rooms to allow removal of any piece of equipment without the disassembly or removal of other equipment. Design of mechanical areas shall facilitate operation and maintenance activities. Provide floor openings and vertical shaft spaces as necessary. Where travel distance within Mechanical Rooms exceeds 10 meters to primary entrance, provide a secondary exit path through a door or hatch.

2-2.4.4.1 Function: Mechanical support spaces for the UEPH building(s).

2-2.4.4.2 Adjacency requirements: Locate main mechanical room on ground floor with door pair opening to exterior. Mechanical support spaces shall not be used for storage or other purposes; access to mechanical spaces will be limited to authorized personnel. Locate air intakes and openings in exterior walls to comply with force protection standards. Do not locate mechanical equipment rooms adjacent to living units (shared walls).

2-2.4.4.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-2.4.4.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required, however, exposed metal decking and/or structural steel shall be painted.

2-2.4.4.5 Other requirements: Locate air intake and exhaust openings to provide optimum indoor air quality. Roof mounted equipment shall not be used. Doors shall have storeroom function (F86) locksets.

2-2.4.5 **Electrical Rooms.** Provide dedicated interior spaces for electrical equipment. Size and locate rooms to allow equipment removal and maintenance. Provide floor openings and vertical shaft spaces as necessary. Provide minimum of one electrical room per building, with one room per floor in large floor plan UEPH.

2-2.4.5.1 Function: Electrical support spaces for the UEPH building(s).

2-2.4.5.2 Adjacency requirements: Locate main electrical equipment room on ground floor with door opening to the exterior. Electrical rooms on upper floors should be located to allow efficient distribution. Electrical rooms shall not be used for storage or other purposes; access to electrical rooms will be limited to authorized personnel.

2-2.4.5.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-2.4.5.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required

2-2.4.5.5 Other requirements: Electrical service to the building shall be underground. Comply with force protection standards for location of exterior, pad mounted transformers. Door shall have storeroom function (F86) lockset.

2-2.4.6 **Communication Rooms.** Provide dedicated interior rooms for communication equipment. Size and locate rooms to allow equipment removal and maintenance; room area shall be minimum of 1.1 % of the building area served, however, minimum dimensions for each communication room shall be 2 150 mm x 3 050 mm. Provide minimum of one communication room per Barrack building on first floor. If a single main communication room serves the entire 300 occupants, its size shall be a minimum of 3250 mm X 3900 mm. Where cable lengths will exceed EIA/TIA 569.A maximum travel distance, provide secondary communication rooms.

2-2.4.6.1 Function: Telephone and cable television support spaces for the UEPH building.

2-2.4.6.2 Adjacency requirements: Provide a main communications room on ground floor for entrance point of services. Locate additional rooms to allow efficient distribution. Communication rooms on upper floors shall be vertically stacked above each other. Communication rooms shall not be used for storage or other purposes; access will be limited to authorized personnel. Access to communications rooms shall be from public corridors on the interior of the building.

2-2.4.6.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-2.4.6.4 Finishes:

- Floor: vinyl composition tile
- Base: resilient cove base.
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or suspended acoustical panel ceiling, or painted underside of concrete structure above

2-2.4.6.5 Other requirements: Communication service to the building shall be underground. Provide minimum 900 mm wide door with storeroom function (F86) lockset. Provide floor openings and vertical shaft spaces as necessary. Provide a minimum of three 102 mm

diameter empty conduits between vertically stacked communication rooms. Communication rooms shall be compliant with ANSI EIA/TIA 569-A.

2-2.4.7 Boot Wash Areas. Provide paved exterior boot wash area at mudroom entrance(s) to the UEPH building(s) or SCB. Design area for use by one soldier at a time.

2-2.4.7.1 Function: Exterior area for washing footgear prior to entering building.

2-2.4.7.2 Adjacency requirements: Locate on ground floor building exterior, adjacent to Mud Rooms.

2-2.4.7.3 Furnishings/Fixtures/Equipment: See detail in Attachment 2 (plate A113).

- Provide drainage assembly with aluminum or stainless steel grating, with non-slip surface, supported by cast-in-place frame and concrete sump. Strainer shall hold debris in sump.
- Provide freeze-proof wall hydrant with aerator nozzle and control valve mounted approximately 600 mm above grating. Top of grating and concrete structure shall align with adjacent concrete sidewalk.
- Provide concrete sidewalk between boot wash area and entrance sidewalk.

2-2.4.7.4 Finishes: refer to exterior building material requirements.

2-2.4.7.5 Other requirements: Provide adequate drainage away from building.

2-3 COMPANY OPERATIONS FACILITIES (COF) FUNCTIONAL AND AREA REQUIREMENTS.

The company operations facilities (COF) building(s) shall consist of administrative areas and supply areas for each company, support spaces, and common locker/shower facilities (refer to Attachment 3 for drawings of previous designs). A range of 11-16 personnel will staff each COF. Provide facilities for 6 large companies housed in three “duplex” buildings. Net areas of all spaces are the same for each company. Total gross area of each COF duplex shall not exceed 1 860 m². Total gross building area of all COF buildings shall not exceed 5 580 m². Buildings shall be two stories in height. Supply and locker/shower areas shall be located on the first floor; administrative functions shall be located on the second floor. COF’s are intended for occupancy only by able-bodied military so an elevator is not required for accessibility. However, designs should incorporate general ADA requirements for accessibility, where practicable.

Each company must function independently, and must be secured from other COFs. Provide separate exterior entrances to the administrative and supply areas of each COF. Common mechanical rooms may be used, but mechanical and electrical systems must provide each company with independent operation and control. Locker/shower spaces may be combined and shared by all companies in a building, or combined locker/shower spaces may be located in a separate building. To the greatest extent possible, buildings shall be arranged to allow future reconfiguration of company sizes.

Net room sizes listed below are based on the previous large COF facilities constructed on Echo Block at North Fort Lewis (see Attachment 3). The space tabulation spreadsheet (see Attachment 3) is consistent with the room areas that are listed in this chapter. All areas are

the minimum requirement. Offerors shall meet or exceed the specific minimum areas presented. Areas without specific area designation shall be designed for functional use and conformance with building and life safety codes. Regardless of the net room areas presented, the gross building area may not exceed the programmatic limitations listed above.

All furnishings listed below are Government furnished and not in contract unless indicated otherwise. Furnishings listed for each room are provided as general guidance for component type and size to assist with room configuration and design. All furnishings and room design shall be coordinated with the required Building Related Interior Design (BRID) and Furniture Related Interior Design (FRID) products described in section 00810 of this RFP.

2-3.1 COF Administrative Areas. Provide one group of administrative areas per company. Company leadership will manage the organization, receive visitors, and conduct day-to-day business from the COF administrative areas. Provide an easily identified, covered entrance. Entrance shall be separate and distinct from the entrances to company supply areas and to other COF administrative areas. Exterior wall space above or adjacent to the entrance will be used to display company identification signage. Provide interior circulation to company supply areas. Military personnel will staff the facility; military and non-military personnel will visit the administrative areas to meet with leadership or attend meetings in the conference room. Although only able-bodied military personnel will be on staff, all administrative spaces except private shower rooms shall comply with UFAS and ADA requirements (this requirement applies whether administrative spaces are located on first or second floor). Provide the following areas for each company:

2-3.1.1 Company Commander (CO). Provide one; 13.6 m². Room shall be accessed through the Admin Office. Occupants: 1, and occasional visitors.

2-3.1.1.1 Function: Private office for commanding officer.

2-3.1.1.2 Adjacency requirements: Adjacent to Admin Office; near XO, 1st SGT, and Training Office.

2-3.1.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate Government Furnished/Government Installed (GFGI):

- one desk 1830 x 915 with return 1070 x 610,
- one bookcase 915 x 2080 x 510,
- two legal-size four-drawer file cabinets,
- one conference table 760 x 1675,
- four side chairs,
- one desk chair.

2-3.1.1.4 Finishes:

- Floor: tile
- Base: resilient base or wood base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-3.1.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-3.1.2 **Executive Officer (XO).** Provide one; 8.9 m². Room shall be accessed through the Admin Office. Occupants: 1, and occasional visitors.

2-3.1.2.1 Function: Private office for the company executive officer.

2-3.1.2.2 Adjacency requirements: Adjacent to Admin Office; near CO, 1 SGT, and Training Office.

2-3.1.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1675 x 915 with return 1070 x 610,
- one bookcase 915 x 2080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair
- one desk chair.
- Provide a floor anchor for one GFGL security safe, approximate dimensions 410 H x 380 W x 350 D, weight 55 kg. Coordinate anchor location with furniture layout; refer to paragraph 5-6.6.

2-3.1.2.4 Finishes:

Floor: tile

Base: resilient base or wood base

Walls: painted gypsum wallboard or painted veneer plaster

Ceiling: suspended acoustical panel ceiling

2-3.1.2.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-3.1.3 **First Sergeant (1 SGT).** Provide one; 10.3 m². Room shall be accessed through the Admin Office. Occupants: 1, and occasional visitors.

2-3.1.3.1 Function: Private office for the company first sergeant (highest ranking non-commissioned officer).

2-3.1.3.2 Adjacency requirements: Adjacent to Admin Office; near CO, XO, and Training Office.

2-3.1.3.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1675 x 915 with return 1070 x 610,
- one bookcase 915 x 2080 x 510,
- two legal-size four-drawer file cabinets,
- two side chairs
- one desk chair.

- Provide a floor anchor for one GFGI security safe, approximate dimensions 410 H x 380 W x 350 D, weight 55 kg. Coordinate anchor location with furniture layout; refer to paragraph 5-6.6.

2-3.1.3.4 Finishes:

- Floor: tile
- Base: resilient base or wood base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-3.1.3.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-3.1.4 **Training Officer.** Provide one; 8.6 m². Room shall be accessed through the Admin Office. Occupants: 1, and occasional visitors.

2-3.1.4.1 Function: Private office for the company Training Officer.

2-3.1.4.2 Adjacency requirements: Adjacent to Admin Office; near CO, XO, and 1 SGT.

2-3.1.4.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGI:

- one desk 1675 x 915 with return 1070 x 610,
- one bookcase 915 x 2080 x 510,
- two legal-size four-drawer file cabinets,
- two side chairs
- one desk chair.
- Provide a floor anchor for one GFGI security safe, approximate dimensions 410 H x 380 W x 350 D, weight 55 kg. Coordinate anchor location with furniture layout; refer to paragraph 5-6.4.

2-3.1.4.4 Finishes:

- Floor: tile
- Base: resilient base or wood base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-3.1.4.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 55.

2-3.1.5 **Admin Office.** Provide one area; minimum 39.9 m², including interior circulation. Room shall be accessed through the Waiting Area. Occupants: 2 clerks, and occasional visitors.

2-3.1.5.1 Function: Office for company administrative clerks, storage of files, access to private offices. Clerks will have visual control of waiting area and conference room door.

2-3.1.5.2 Adjacency requirements: Adjacent to Waiting Area; CO, XO, 1 SGT, and Training Office. Adjacent to or near Conference Room. Near main entrance to Administrative Area.

2-3.1.5.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGI:

- 2 clerk desks 1525 x 760 with returns 1070 x 610 and desk chairs
- Provide reception counter (built-in casework) with solid surfacing, minimum 1 800 mm long separating the Admin Office from the Waiting Area. The counter shall be 1 000 mm high x 600 mm deep.
- Provide a floor anchor for one GFGI security safe, approximate dimensions 410 H x 380 W x 350 D, weight 55 kg. Coordinate anchor location with furniture layout; refer to paragraph 5-6.6.

2-3.1.5.4 Finishes:

- Floor: tile
- Base: resilient base or wood base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-3.1.5.5 Other requirements: Provide 900 mm wide entry door into room from Waiting Area; door shall have entry function (F81) lockset. Exterior window is desirable.

2-3.1.6 **Administrative Storage.** Provide one; minimum area 1.7 m². Room shall be accessed from the Admin Office.

2-3.1.6.1 Function: Closet for storage of supplies, paper, etc.

2-3.1.6.2 Adjacency requirements: Adjacent to Admin Office.

2-3.1.6.3 Furnishings/Fixtures/Equipment:

2-3.1.6.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, or painted veneer plaster.

2-3.1.6.5 Other requirements: Door(s) shall have classroom function (F84) lockset.

2-3.1.7 **Administrative Area Corridor.** Provide as required to allow circulation to building spaces, and comply with applicable code egress requirements. Unless otherwise required, minimum corridor width shall be 1 800 mm. Administrative area corridor shall be capable of being secured from exterior entrances and from any adjacent public, unsecure corridors.

2-3.1.7.1 Function: Circulation and means of egress.

2-3.1.7.2 Adjacency requirements: Adjacent to entry vestibule, and vertical circulation (where occurs). Corridor(s) shall provide access to administrative area spaces and shall

provide circulation between administrative spaces and supply spaces. Corridor may directly link a company's administrative area to its supply area; or the company's administrative area corridor may provide access to a public, unsecure corridor that provides access to the supply areas of all companies in the building.

2-3.1.7.3 Furnishings/Fixtures/Equipment (FFE): Provide one standard height and one accessible electric water cooler. Provide fire extinguishers in semi-recessed fire extinguisher cabinets to comply with applicable codes.

2-3.1.7.4 Finishes:

- Floor: porcelain tile, quarry tile, or vinyl composition tile.
- Base: porcelain tile, quarry tile, or resilient cove base.
- Walls: impact resistant gypsum wallboard with painted finish.
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-3.1.7.5 Other requirements: All exterior doors shall have an exit device Type 5 function 8 lockset with lever trim.

2-3.1.8 **Waiting Area.** Provide one area, approximately 8.0 m² incorporated into the Administrative Area Corridor. Occupants: Two or more visitors; additional visitors (e.g. those waiting to attend a large meeting in the conference room) will wait in the adjacent corridor.

2-3.1.8.1 Function: Waiting and reception area for company soldiers and visitors. Control point for access to admin office and conference room.

2-3.1.8.2 Adjacency requirements: Adjacent to, or very close to, entry vestibule; reception desk should be easily seen by visitors entering the building. Waiting Area is open to Administrative Area Corridor.

2-3.1.8.3 Furnishings/Fixtures/Equipment (FFE): Provide two side chairs if room configuration allows area for seating. Provide one 1 200 mm high x 1 800 mm wide wall mounted bulletin board.

2-3.1.8.4 Finishes: Match Administrative Area Corridor.

2-3.1.8.5 Other requirements:

2-3.1.9 **Entry Vestibule.** Provide at main exterior entrance to Administrative Area Corridor.

2-3.1.9.1 Function: Primary entry point into the COF and weather protection for interior spaces.

2-3.1.9.2 Adjacency requirements: Adjacent to Administrative Area Corridor.

2-3.1.9.3 Furnishings/Fixtures/Equipment:

2-3.1.9.4 Finishes:

- Floor: Provide recessed entry mat full depth of vestibule x full width of doors; porcelain tile, or quarry tile in remainder of room.
- Base: porcelain tile or quarry tile
- Walls: Match exterior wall finish material (preferred), or painted impact resistant gypsum wallboard, or painted veneer plaster
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-3.1.9.5 Other requirements: Provide aluminum storefront entrance doors on exterior and (optional) corridor sides of vestibule. Additional aluminum storefront area (sidelights, transoms) is desirable. Provide minimum 1 800 mm deep exterior covered area (entry porch) full width of storefront. Provide location for company identification signage on exterior wall above or adjacent to entrance.

2-3.1.10 **Platoon Office.** Provide five, each 8.0 m² to 9.0 m². Offices shall be accessed directly from the Administrative Area Corridor, or through a common space that is accessed from the Administrative Area Corridor. Occupants: 1 in each office, and occasional visitors.

2-3.1.10.1 Function: Private office for platoon leaders or other administrators.

2-3.1.10.2 Adjacency requirements: Adjacent to Administrative Area Corridor. Near Admin Office.

2-3.1.10.3 Furnishings/Fixtures/Equipment: Design each office to accommodate GFGI:

- one desk 1675 x 915 with return 1070 x 610,
- one side chair and one desk chair

2-3.1.10.4 Finishes:

- Floor: vinyl composition tile
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-3.1.10.5 Other requirements: Exterior window is desirable but not required. Partitions shall have minimum STC rating of 49.

2-3.1.11 **Conference Room.** Provide one; 41.6 m². Room shall be accessed from the Waiting Area (preferable), or through the Admin Office, or from the Administrative Area Corridor. Admin clerks shall have visual control of Conference Room door (preferred). Occupants: up to 22 persons.

2-3.1.11.1 Function: Conference room for company leadership, staff, and visitors. Functions will include staff meetings, hearings, disciplinary sessions, and training.

2-3.1.11.2 Adjacency requirements: Adjacent to Admin Office or Waiting Area.

2-3.1.11.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- one marker board (minimum 2 400 mm wide x 1 200 mm high)
- one 2 400 mm wide wall mounted pull-down projection screen.

Design room to accommodate GFGI:

- one conference table, boat shaped, 1 220 by 4 250
- 20 side chairs

2-3.1.11.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-3.1.11.5 Other requirements: Door shall have classroom function (F84) lockset. Partitions shall have minimum STC rating of 55.

2-3.1.12 **Conference Room Storage.** Provide one; minimum area 1.7 m². Room shall be accessed from the Conference Room.

2-3.1.12.1 Function: Closet for storage of folding tables, display easels, etc.

2-3.1.12.2 Adjacency requirements: Adjacent to Conference Room.

2-3.1.12.3 Furnishings/Fixtures/Equipment: none

2-3.1.12.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, or painted veneer plaster

2-3.1.12.5 Other requirements: Door(s) shall have classroom function (F84) lockset.

2-3.1.13 **Men's Toilet/Shower.** Provide one private toilet room with single shower stall. Room shall be sized and configured to comply with ADA accessibility requirements, except for shower stall and access to shower stall. Room shall be accessed from Administrative Area Corridor.

2-3.1.13.1 Function: Men's single-occupant toilet, lavatory and shower for use by staff and visitors. Private shower and dressing room for use by company leadership after physical training.

2-3.1.13.2 Adjacency requirements: Adjacent to Administrative Area Corridor. Near Women's Toilet/Shower. However, Men's and Women's Toilet/Shower may be on separate floors if space planning requires.

2-3.1.13.3 Furnishings/Fixtures/Equipment (FFE): Provide and design room to accommodate:

- one floor mounted toilet,
- one wall-hung lavatory,
- mirror with shelf above lavatory,
- paper towel dispenser/waste receptacle,
- soap dispenser,
- toilet tissue dispenser,
- wall mounted grab bars at toilet.
- Shower stall with single piece drain pan, single handle mixing valve and shower head
- Shower shall have recessed ceramic soap/towel holder and wall mounted grab bar
- Shower curtain rod with vinyl shower curtain
- four towel/robe hooks,
- wall mounted full-length mirror 600 mm x 1 800 mm

2-3.1.13.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile
- Shower: ceramic tile all walls
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-3.1.13.5 Other requirements: Door shall have privacy function (F76) lockset. Partitions shall have minimum STC rating of 49. Provide floor drain at dressing area located outside of circulation path.

2-3.1.14 **Women's Toilet/Shower.** Provide one private toilet room. Room shall be sized and configured to comply with ADA accessibility requirements, except for shower stall and access to shower stall. Room shall be accessed from Administrative Area Corridor.

2-3.1.14.1 Function: Women's single-occupant toilet and lavatory, for use by staff and visitors. Private shower and dressing room for use by company leadership after physical training.

2-3.1.14.2 Adjacency requirements: Adjacent to Administrative Area Corridor. Near Men's Toilet/shower. However, Men's and Women's Toilet/Shower may be on separate floors if space planning requires.

2-3.1.14.3 Furnishings/Fixtures/Equipment (FFE): Provide and design room to accommodate:

- one floor mounted toilet,
- one wall-hung lavatory,
- mirror with shelf above lavatory,
- paper towel dispenser/waste receptacle,
- soap dispenser,
- sanitary napkin disposal

- toilet tissue dispenser,
- wall mounted grab bars at toilet.
- Shower stall with single piece drain pan, single handle mixing valve and shower head
- Shower shall have recessed ceramic soap/towel holder and wall mounted grab bar
- Shower curtain rod with vinyl shower curtain
- four towel/robe hooks,
- wall mounted full-length mirror, 600 mm x 1 800 mm

2-3.1.14.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile
- Shower: ceramic tile all walls
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-3.1.14.5 Other requirements: Door shall have privacy function (F76) lockset. Partitions shall have minimum STC rating of 49. Provide floor drain at dressing area located outside of circulation path.

2-3.1.15 **Janitor Closet.** Provide one. Minimum area 4.0 m². Room shall be accessed from Administrative Area Corridor.

2-3.1.15.1 Function: Sink and storage of cleaning supplies, soap, and paper products.

2-3.1.15.2 Adjacency requirements: Adjacent to Administrative Area Corridor. Near Toilet/Shower rooms.

2-3.1.15.3 Furnishings/Fixtures/Equipment (FFE): Provide and design room to accommodate:

- one floor mounted mop sink,
- mop rack for three mops,
- minimum 1 500 linear mm of wall mounted stainless steel shelving.

2-3.1.15.4 Finishes:

- Floor: ceramic tile, or sealed concrete
- Base: ceramic tile base or resilient cove base
- Walls: painted water-resistant gypsum wallboard, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster

2-3.1.15.5 Other requirements: Door shall have classroom function (F84) lockset.

2-3.1.16 **Communication Room.** Provide dedicated interior room(s) for communication distribution equipment. A main communication room shall be provided on the ground floor. If this room is accessed directly from the exterior it may serve both companies located within the building (two companies in duplex buildings). If the main communication room is accessed from an interior corridor, two separate rooms shall be provided with each dedicated to one company. Communication rooms shall not be combined with mechanical or electrical

rooms. Room(s) may be accessed from exterior, Administrative Area Corridor, public unsecure corridor (if provided), or Equipment Maintenance Area. Main communication room(s) shall have minimum size of 3050 mm x 3650 mm. Provide additional communication rooms as needed (minimum one per floor); to ensure that all spaces having telephone or computer data outlets shall be located to provide a maximum cable length of 90 m between the outlet and communication room. Minimum dimensions of secondary communication rooms shall be 2750 mm x 3050 mm. Provide floor openings and vertical shaft spaces as necessary.

2-3.1.16.1 Function: Telephone, data network, and cable television entrance point and support spaces for the COF.

2-3.1.16.2 Adjacency requirements: Locate to allow efficient distribution. Communication rooms shall not be used for storage or other purposes; access will be limited to authorized personnel.

2-3.1.16.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-3.1.16.4 Finishes:

- Floor: vinyl composition tile
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or suspended acoustical panel ceiling

2-3.1.16.5 Other requirements: Room shall have minimum 900 mm wide door with storeroom function (F86) lockset. Air conditioning shall be provided for the Main Communications Room. Communication rooms shall be compliant with ANSI EIA/TIA 569-A.

2-3.2 **COF Supply Areas.** Provide one group of supply areas per company; locate on the ground floor. COF supply areas will be used to store, clean, and repair company operational equipment and weapons. Individual TA-50 gear lockers shall be provided for company soldiers. Main entrance to supply areas will be from paved service area; service area will be used for loading company equipment on and off of large trucks. Entrance shall be separate and distinct from the entrances to company administrative areas and to other COF supply areas. Exterior wall space above or adjacent to the entrance will be used to display company identification signage. Provide interior circulation to company administrative areas. Only able-bodied military personnel will occupy COF supply areas; accessibility consistent with the ADA is not required. However, incorporation of ADA compliant accessible design is preferred. Steel stud and gypsum wallboard, or concrete masonry unit, partitions shall be used to separate storage areas from each other and from Equipment Maintenance Area. Provide the following areas for each company:

2-3.2.1. **Equipment Maintenance Area.** Provide one area. Minimum area: 95.6 m². Main exterior entry shall open to paved service yard. Provide interior access from COF administrative area via administrative area corridor, stairs, or public unsecure corridor connecting other COFs in the building.

2-3.2.1.1 Function: Equipment cleaning, repair and access to COF storage spaces.

2-3.2.1.2 Adjacency requirements: Adjacent to exterior paved area for loading equipment on large vehicles. Adjacent to Arms Vault, TA-50 Lockers, and storage spaces. Adjacent to, or near Administrative Area.

2-3.2.1.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- stainless steel equipment cleaning sinks 710 mm x 710 mm x 170 mm deep, locate near exterior doors.
- fire extinguishers in semi-recessed fire extinguisher cabinets to comply with applicable codes. (extinguishers are GFGI)
- Shelving, minimum 3000 linear mm. (all shelving is N.I.C.)

2-3.2.1.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted impact resistant gypsum wallboard or painted concrete masonry units at exterior walls, walls separating COFs and walls separating storage areas from Equipment Maintenance.
- Painted concrete walls will separate Arms Storage from Equipment Maintenance.
- Ceiling: painted exposed structure.

2-3.2.1.5 Other requirements: Provide an uncovered mud removal area for equipment cleaning outside of the building at the paved service yard, near the Equipment Maintenance Area. This area will consist of freeze-proof hose bibbs mounted 600 mm above a concrete slab with a removable non-slip grate cover. The slab should be designed to allow water to drain to the storm drainage system, and allow easy collection and disposal of mud removed during the cleaning process. Provide the following number of hose bibbs: 16 for large company. Provide a pair of 900 mm wide hollow metal doors opening onto the paved service yard; doors shall have hold open devices. All entry doors into Equipment Maintenance Area shall have entry function (F82) locksets with auxiliary deadlocks (thumb turn inside, keyed cylinder outside), or function F08 exit devices (if exit devices are required by code).

2-3.2.2. **Arms Vault.** Provide one. Area: Large company 55.8 m². (Note: Size is an increase from previous design). Construction of Arms Vault shall comply with paragraph 5-6.2. Room shall be accessed from Equipment Maintenance area. One part time occupant.

2-3.2.2.1 Function: Storage and issue of weapons. **Note:** On an occasional basis small volumes of ammunition and/or other explosives will be temporarily stored in this area. Therefore, the High-Hazard occupancy Group H-1 requirements of the International Building Code will apply. Assume that explosive storage will not be greater than 2 pounds, and will be stored in an approved cabinet, so H-1 and B occupancies may occur within the same building. Provide signage on the interior and exterior of the Arms Vault that states/limits incidental, overnight storage to not more than 2 pounds.

2-3.2.2.2 Adjacency requirements: Adjacent to Equipment Maintenance Area

2-3.2.2.3 Furnishings/Fixtures/Equipment: Provide arms rack anchor rings on all walls inside Arms Vault; refer to paragraph 5-6.4.6. Arms racks are not in contract. Provide explosives storage cabinet meeting IBC and NFPA requirements for small volume storage.

2-3.2.2.4 Finishes:

- Floor: sealed concrete
- Base: none.
- Walls: painted concrete
- Ceiling: painted concrete.

2-3.2.2.5 Other requirements: Intrusion detection system (ICIDS) is required, see Chapter 9 paragraph 9.6. Provide humidity control meeting Army requirements for weapons storage.

2-3.2.3. **Unit Storage.** Provide one area. Minimum area: 98.8 m² Exterior entry shall open to paved service yard. Provide access from Equipment Maintenance Area and from exterior service yard.

2-3.2.3.1 Function: Secure storage of general unit supplies files, records and miscellaneous dry goods. Contents do not present a high risk of fire.

2-3.2.3.2 Adjacency requirements: Adjacent to exterior paved area for loading equipment on large vehicles. Adjacent to Equipment Maintenance Area.

2-3.2.3.3 Furnishings/Fixtures/Equipment: none

2-3.2.3.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: Wire mesh partitions will separate Unit Storage area from Equipment Maintenance and adjacent storage areas within the COF. Provide painted impact resistant gypsum wallboard, or painted concrete masonry units at exterior walls and walls separating Unit Storage from adjacent COFs.
- Ceiling: painted exposed structure, or wire mesh.

2-3.2.3.5 Other requirements: Provide a 900 mm wide hollow metal door opening onto the exterior; door shall have hold open device and entry function (F82) lockset with auxiliary deadlock (thumb turn inside, keyed cylinder outside), or function F08 exit device (if exit devices are required by code). Provide a pair of 900 mm wide swinging doors with keyed cylinder lock in partition wall at Equipment Storage. Partitions shall extend to underside of structure above.

2-3.2.4. **General Storage.** Minimum area: 37.0 m². General Storage was provided in previous designs, however this space will be combined with the TA-50 Gear Storage room in this project to provide the maximum possible floor area for TA-50 lockers.

2-3.2.4.1 Function: deleted

2-3.2.4.2 Adjacency requirements: na

2-3.2.4.3 Furnishings/Fixtures/Equipment: na

2-3.2.4.4 Finishes: na

2-3.2.4.5 Other requirements: na

2-3.2.5. **Nuclear, Biological and Chemical Equipment (NBC) Storage.** Provide one area. Minimum area: 15.8 m². Provide access from Equipment Maintenance Area.

2-3.2.5.1 Function: Secure storage of equipment for use in defense of nuclear, biological or chemical warfare.

2-3.2.5.2 Adjacency requirements: Adjacent to Equipment Maintenance Area.

2-3.2.5.3 Furnishings/Fixtures/Equipment: none.

2-3.2.5.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: Partitions will separate NBC Storage area from Equipment Maintenance and adjacent storage areas within the COF. Provide painted impact resistant gypsum wallboard, or painted concrete masonry units at exterior walls and walls separating NBC Storage from adjacent COFs.
- Ceiling: painted exposed structure.

2-3.2.5.5 Other requirements: Provide 900 mm wide swinging door with keyed cylinder lock in partition at Equipment Storage. Provide partitions to underside of structure above.

2-3.2.6. **Communications Storage.** Provide one area. Minimum area: 15.8 m². Provide access from Equipment Maintenance Area.

2-3.2.6.1 Function: Secure storage of radios and communications field gear.

2-3.2.6.2 Adjacency requirements: Adjacent to Equipment Maintenance Area.

2-3.2.6.3 Furnishings/Fixtures/Equipment: none.

2-3.2.6.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: Partitions will separate Communications Storage area from Equipment Maintenance and adjacent storage areas within the COF. Provide painted impact resistant gypsum wallboard, or painted concrete masonry units at exterior walls and walls separating Communications Storage from adjacent COFs.
- Ceiling: painted exposed structure.

2-3.2.6.5 Other requirements: Provide 900 mm wide swinging door with keyed cylinder lock in partition at Equipment Storage. Provide partitions to underside of structure above.

2-3.2.7. **TA-50 Storage.** Provide one area. Size and configure area to accommodate the maximum number of TA-50 lockers per company. Allow minimum 1 200 mm clearance between parallel rows of lockers and minimum 900 mm between open locker doors and

obstructions. Provide access from Equipment Maintenance Area if located on first floor. Provide additional exits as required by applicable codes.

2-3.2.7.1 Function: Gear lockers for storage of individual soldier's TA-50 field gear.

2-3.2.7.2 Adjacency requirements: Adjacent to Equipment Maintenance Area if located on first floor.

2-3.2.7.3 Furnishings/Fixtures/Equipment: Provide TA-50 gear lockers, nominal locker size: 1 220 mm W x 610 mm D x 1830 mm H; refer to Section 00890, 10505 Metal Lockers and Locker Benches, for requirements.

2-3.2.7.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base.
- Walls: Partitions will separate TA-50 Storage area from Equipment Maintenance and adjacent storage areas within the COF. TA- 50 Storage room shall be separately securable from the remainder of the COF. Provide painted impact resistant gypsum wallboard, or painted concrete masonry units at exterior walls and walls separating TA-50 Storage from adjacent COF occupancies.
- Ceiling: painted exposed structure.

2-3.2.7.5 Other requirements: Provide 900 mm wide swinging door(s) with keyed cylinder lock in partition at TA-50 Storage. Provide partitions to underside of structure above.

2-3.3 **COF Support Areas.** Provide the following areas in each COF building. Stairs shall be provided in two-story structures. Only able-bodied personnel will occupy COF support areas; accessibility for the disabled is not required, however, stairs and corridors shall comply with general ADA and UFAS accessibility requirements and applicable codes.

2-3.3.1. **Mechanical Room(s).** Provide dedicated areas for mechanical equipment. Each company shall have independent operation and control of HVAC system for its own spaces, but co-located mechanical equipment may serve more than one company, and mechanical rooms may be combined. Mechanical rooms shall not be used for storage or other purposes. Access will be limited to authorized personnel. Size and locate room(s) to allow equipment removal and maintenance. Provide floor openings and vertical shaft spaces as necessary.

2-3.3.1.1 Function: Spaces for HVAC, water heating, and other plumbing and mechanical equipment.

2-3.3.1.2 Adjacency requirements: Locate to allow efficient distribution. Main mechanical room shall be located on the ground floor with a 1 800 mm wide door pair opening to the exterior. Mechanical rooms on other floors shall be accessed from corridors or dedicated access stairs.

2-3.3.1.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-3.3.1.4 Finishes:

- Floor: sealed concrete

- Base: resilient cove base, or none.
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required; exposed deck and structure shall be painted.

2-3.3.1.5 Other requirements: Doors shall have storeroom function (F86) locksets.

2-3.3.2. **Electrical Room(s).** Provide dedicated areas for electrical equipment. The main electrical room for the building shall contain the service entrance, metering equipment, and main distribution panel. Metering equipment shall be integrated and coordinated with the existing UMCS/EMCS system. Electrical rooms shall not be used for storage or other purposes. Access will be limited to authorized personnel. Size and locate room(s) to allow equipment removal and maintenance. Provide floor openings and vertical shaft spaces as necessary.

2-3.3.2.1 Function: Spaces for electrical equipment.

2-3.3.2.2 Adjacency requirements: Locate to allow efficient distribution. Main electrical room(s) shall be located on the ground floor and accessed from the exterior.

2-3.3.2.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-3.3.2.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required; exposed deck and structure shall be painted.

2-3.3.2.5 Other requirements: Electrical service to buildings shall be underground. Doors shall be minimum 900 mm wide, open to the exterior, and have storeroom function (F86) locksets.

2-3.3.3 **Interior Stairs.** Provide as required to allow circulation to upper floor of the building, and to comply with applicable code egress requirements. At least one stair connecting second and first floors shall be an interior stair.

2-3.3.3.1 Function: Circulation and means of egress.

2-3.3.3.2 Adjacency requirements: Adjacent to corridors. Connects all floors of the building.

2-3.3.3.3 Furnishings/Fixtures/Equipment (FFE): Stairs shall be steel construction with concrete-filled treads, or cast-in-place concrete construction. Open risers are prohibited. Provide mechanical and electrical systems to comply with applicable codes.

2-3.3.3.4 Finishes:

- Landing floor: porcelain tile, quarry tile, resilient tile, vinyl composition tile, or sealed concrete.
- Base: porcelain tile, quarry tile, or resilient cove base.

- Treads: porcelain tile, quarry tile, resilient treads, or sealed concrete. Provide slip-resistant nosing if tile is used.
- Risers: painted steel, porcelain tile, quarry tile, or sealed concrete.
- Walls: painted impact resistant gypsum wallboard, or painted concrete masonry units.
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-3.3.3.5 Other requirements: Stairs shall comply with ADA accessibility requirements and applicable codes. Railings shall be painted steel, or prefinished aluminum.

2-3.3.4 **Exterior Stairs.** Provide as required to allow circulation to upper floor of the building. Comply with applicable code egress requirements. Exterior stairs may be open or covered.

2-3.3.4.1 Function: Circulation and means of egress.

2-3.3.4.2 Adjacency requirements: Adjacent to corridors. Connects all floors of the building.

2-3.3.4.3 Furnishings/Fixtures/Equipment (FFE): Exterior stairs shall be cast-in-place concrete construction. Open risers and metal grating treads are prohibited.

2-3.3.4.4 Finishes: Landing floor: sealed concrete with slip-resistant finish texture.

- Base: none required
- Treads: sealed concrete with slip-resistant cast-in-place nosing
- Risers: sealed concrete
- Walls: exterior wall materials
- Ceiling: painted exterior gypsum soffit board, painted Portland cement plaster, or painted underside of concrete structure above

2-3.3.4.5 Other requirements: Stairs shall comply with ADA accessibility requirements and applicable codes. Railings shall be prefinished aluminum.

2-3.4 **Common Locker/Shower Areas.** Provide one group of men's and one group of women's common locker/shower areas per company. Locate on ground floor. Quantities of lockers and plumbing fixtures for men and women vary by company size. At minimum provide the quantity of lockers and fixtures indicated in the table below. Soldiers will use locker rooms before and after physical training. Accessibility by disabled persons is not required. Provide exterior entrance(s) with adjacent boot wash area. Additional entrances may be provided from a common public corridor in the COF. Entrances shall be separate and distinct from the entrances to company supply and administrative areas. Entrance vestibules shall be provided and shall provide visual privacy into the spaces. It is preferred that the locker rooms be adjacent and that a demising wall or door be included that allows the number of toilet stalls and shower stalls to be adjusted between genders if the composition of the occupying unit changes.

Table 2.1 Minimum Locker Room Plumbing Fixture and Locker Quantities:

	MEN	WOMEN
Lockers	70	10
Toilets	2	2
Urinals	2	-
Lavatories	2	1
Showers	8	2

2-3.4.1 Women's Locker Room. Provide one or more rooms, sized to accommodate the number of lockers and plumbing fixtures required for each company served. Provide exterior entrance(s) with airlock vestibule. Locker room may also be accessed from a common interior public corridor in the COF building. For egress purposes, the occupant load shall be equal to the higher of the following numbers: a) the number of lockers in the room, or b) the code determined number of occupants calculated by multiplying room area x the occupant load factor.

2-3.4.1.1 Function: Toilets, showers and lockers for female soldiers.

2-3.4.1.2 Adjacency requirements: Near Men's Locker Room. Ground floor exterior entrance.

2-3.4.1.3 Furnishings/Fixtures/Equipment (FFE): Provide and design room to accommodate:

- floor mounted toilets,
- wall-hung lavatories,
- ceramic tile shower enclosures
- double tier lockers
- toilet partitions at each toilet
- one mirror with shelf above each lavatory;
- one paper towel dispenser/waste receptacle per two lavatories (or fraction thereof);
- one soap dispenser per lavatory;
- one sanitary napkin disposal per toilet;
- one toilet tissue dispenser per toilet;
- one soap holder per shower;
- one shower curtain and rod at each shower;
- two double pin robe hooks for each shower;
- one robe hook on each toilet partition door;
- one sanitary napkin and tampon vending machine.
- provide 300 mm of locker room bench per 5 lockers provided.
- one wall mounted electric hair dryer per each lavatory (or fraction thereof); mount adjacent to mirrors.
- Provide fire extinguishers in semi-recessed fire extinguisher cabinets to comply with applicable codes

2-3.4.1.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile, or 1 800 mm high ceramic tile wainscot with painted impact resistant gypsum wallboard or painted concrete masonry units above.
- Ceiling: painted Portland cement plaster, or suspended cement board with synthetic finish system.

2-3.4.1.5 Other requirements: Provide floor drains in locker rooms; floor drains and/or trench drains in shower area.

2-3.4.2 Men's Locker Room. Provide one or more rooms, sized to accommodate the number of lockers and plumbing fixtures required for each company served. Provide exterior entrance(s) with airlock vestibule. Locker room may also be accessed from a common interior public corridor in the COF building. For egress purposes, the occupant load shall be equal to the higher of the following numbers: a) the number of lockers in the room, or b) the code determined number of occupants calculated by multiplying room area x the occupant load factor.

2-3.4.2.1 Function: Toilets, showers and lockers for male soldiers.

2-3.4.2.2 Adjacency requirements: Near Women's Locker Room.

2-3.4.2.3 Furnishings/Fixtures/Equipment (FFE): Provide and design rooms to accommodate:

- floor mounted toilets,
- wall-hung lavatories,
- wall-hung urinals,
- ceramic tile shower enclosures
- double tier lockers
- toilet partitions at each toilet
- one mirror with shelf above each lavatory;
- one paper towel dispenser/waste receptacle per two lavatories (or fraction thereof);
- one soap dispenser per lavatory;
- one toilet tissue dispenser per toilet;
- one soap holder per shower;
- one shower curtain and rod at each shower;
- two double pin robe hooks for each shower;
- one robe hook on each toilet partition door;
- provide 300 mm of locker room bench per 5 lockers provided.
- Provide fire extinguishers in semi-recessed fire extinguisher cabinets to comply with applicable codes

2-3.4.2.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile, or 1 800 mm high ceramic tile wainscot with painted impact resistant gypsum wallboard or painted concrete masonry units above.

- Ceiling: painted Portland cement plaster, or suspended cement board with synthetic finish system.

2-3.4.2.5 Other requirements: Provide floor drains in locker rooms; floor drains and/or trench drains in shower area.

2-3.4.3 **Janitor Closet.** Provide one at each group of Locker Rooms. Minimum area: 4.0 m². Room shall be accessed from a common interior space (corridor or vestibule); access directly from Men's or Women's Locker Room is not acceptable.

2-3.4.3.1 Function: Sink and storage of cleaning supplies, soap, paper products.

2-3.4.3.2 Adjacency requirements: Adjacent to Men's and Women's locker rooms.

2-3.4.3.3 Furnishings/Fixtures/Equipment (FFE): Provide one floor mounted mop sink, mop rack for three mops, and minimum 3 000 linear mm of wall mounted stainless steel shelving.

2-3.4.3.4 Finishes:

- Floor: ceramic tile, or sealed concrete
- Base: resilient cove base, or ceramic tile base
- Walls: painted water-resistant gypsum wallboard, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster

2-3.4.3.5 Other requirements: Door shall have classroom function (F84) lockset.

2-3.4.4. **Boot Wash Areas.** Provide paved exterior boot wash area at each exterior entrance to the COF Administrative Area. Design area for use by one soldier at a time.

2-3.4.4.1 Function: Exterior area for washing footgear prior to entering building.

2-3.4.4.2 Adjacency requirements: near entrance to locker rooms.

2-3.4.4.3 Furnishings/Fixtures/Equipment: Provide drainage assembly: Removable aluminum or stainless steel grating, with non-slip surface, supported by cast-in-place perimeter frame with concrete sump. See details on plate A113 in Attachment 2. Filtered runoff shall be piped to storm drainage system. Provide freeze-proof wall hydrant with aerator nozzle with control valve mounted approximately 600 mm above grating. Top of grating and concrete structure shall align with adjacent concrete sidewalk. Provide concrete sidewalk between boot wash area and entrance sidewalk.

2-3.4.4.4 Finishes: refer to exterior building material requirements.

2-3.4.4.5 Other requirements: Provide adequate surface drainage away from building.

2-4 **BATTALION HEADQUARTERS FUNCTIONAL AND AREA REQUIREMENTS.**

The Battalion Headquarters (BN HQ) building shall consist of administrative areas, soldier services (chaplain) areas, classrooms, and support spaces. Provide facilities for large battalions. Total gross area of each battalion HQ shall not exceed 1 524 m². Each battalion

shall occupy a separate building. Buildings shall be two stories in height. All classroom area, service core, soldier support offices, personnel administration clerk (PAC), and S-4 offices shall be located on the first floor; The command section, service core, S-1, S-2, and S-3 offices may be located on the second floor. One elevator is required. To the greatest extent possible, buildings shall be arranged to allow future reconfiguration of battalion sizes, and internal reorganization of office spaces: fixed elements such as toilets, equipment rooms, and core areas shall be located at the perimeter of administrative spaces; partitions separating administrative spaces should not be bearing walls.

Leadership and staff will manage the organization, receive visitors, and conduct the business of the battalion from the administrative areas (Command section, S-1, S-2, S-3, S-4, and PAC). Soldiers will visit the facility to conduct administrative business, attend training classes, or meet with support personnel (Chaplain's office). Military personnel will staff the facility; military and non-military personnel will visit the facility to meet with leadership or attend meetings. Although only able-bodied military personnel will be on staff, all spaces except shower rooms, and utility areas (janitor closets, mechanical, electrical, communication, and elevator machine rooms) shall comply with ADA accessibility requirements. In addition, fully accessible shower rooms shall be provided.

Net room sizes listed below are based on the previous (FY 03) Battalion Headquarters facilities designed for Echo Block at North Fort Lewis (see Attachment 4). The space tabulation spreadsheet (see Attachment 4) is consistent with the room areas that are listed in this chapter. All areas are the minimum requirement. Offerors shall meet or exceed the specific minimum areas presented. Areas without specific area designation shall be designed for functional use and conformance with building and life safety codes. Regardless of the net room areas presented, the gross building area may not exceed the programmatic limitations listed above.

NOTE: This Battalion Headquarters building is located on the south side of the Training Area. For discussion of the Battalion Headquarters (General Administration (GA) variant) that is located on the north side of the Training Area, refer to paragraph 2-5. The BN GA variant design, while the same building in structure and exterior appearance as the BN HQ, has significantly different requirements for floor plan and functional areas.

Functions and areas of the BN HQ are as follows:

2-4.1 Command Section. Provide one group of offices, with accompanying reception area, coffee area and private toilet. In a two-story building locate Command Section on the second floor. Command section shall be adjacent to, and accessed through, the S-1 Clerical/Central Files area.

2-4.1.1 Commanding Officer (CO). Provide one; 22.8 m². Room shall be accessed through the Reception Area. Occupants: 1, and occasional visitors.

2-4.1.1.1 Function: Private office for battalion commanding officer.

2-4.1.1.2 Adjacency requirements: Adjacent to Reception Area, S-1 Clerical /Central Files. Adjacent to command section toilet, coffee area, Executive Officer and Command Sergeant Major offices.

2-4.1.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk: 1 830 x 915
- one credenza 1 830 x 610
- one bookcase 915 x 2 080 x 510
- two legal-size four-drawer file cabinets,
- one conference table 915 x 1 830,
- six side chairs, and one desk chair.

2-4.1.1.4 Finishes:

- Floor: tile
- Base: resilient base or wood base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.1.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.1.2 **Executive Officer (XO).** Provide one; 16.8 m². Room shall be accessed through the Reception Area. Occupants: 1, and occasional visitors.

2-4.1.2.1 Function: Private office for battalion executive officer.

2-4.1.2.2 Adjacency requirements: Adjacent to Reception Area, S-1 Clerical /Central Files. Adjacent to or near, coffee area, CO office and Command Sergeant Major office.

2-4.1.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGI:

- one desk 1 830 with return 915,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.1.2.4 Finishes:

- Floor: tile
- Base: resilient base or wood base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.1.2.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.1.3 **Command Sergeant Major (CSM).** Provide one; 16.6 m². Room shall be accessed through the Reception Area. Occupants: 1, and occasional visitors.

2-4.1.3.1 Function: Private office for battalion command sergeant major.

2-4.1.3.2 Adjacency requirements: Adjacent to Reception Area, S-1 Clerical /Central Files. Adjacent to or near coffee area, CO office and XO office.

2-4.1.3.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1 830 x 915 with return 1 070 x 610,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.1.3.4 Finishes:

- Floor: tile
- Base: resilient base or wood base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.1.3.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.1.4 **Reception Area.** Provide one; 13.9 m², (within Command/S-1 Section in FY 03 design) to accommodate reception desk and waiting area. Reception area shall be accessed through S-1 Clerical/Central Files. Occupants: 1, and space for four visitors.

2-4.1.4.1 Function: Receptionist workstation and waiting area for visitors to the CO, XO, CSM offices.

2-4.1.4.2 Adjacency requirements: Adjacent (and open to) S-1 Clerical /Central Files area. Adjacent to coffee area, CO, XO and Command Sergeant Major offices.

2-4.1.4.3 Furnishings/Fixtures/Equipment: Design area to accommodate GFGL:

- one reception desk (systems furniture workstation type, nominal area 7.0 m²),
- four side chairs
- one magazine table.

2-4.1.4.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.1.4.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset..

2-4.1.5 **Command Section Toilet.** Provide one private toilet room for use by the commanding officer. Room is not required to comply with ADA accessibility requirements. Room shall be accessed directly from the CO office.

2-4.1.5.1 Function: single-occupant toilet and lavatory, for use by commander.

2-4.1.5.2 Adjacency requirements: Adjacent to CO office.

2-4.1.5.3 Furnishings/Fixtures/Equipment (FFE): Provide and design room to accommodate:

- one floor mounted toilet,
- one vanity mounted lavatory,
- mirror above lavatory,
- paper towel dispenser/waste receptacle,
- soap dispenser,
- toilet tissue dispenser.

2-4.1.5.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-4.1.5.5 Other requirements: Door shall have privacy function (F76) lockset. Arrange space so that door is not visible from entrance door of CO office. Partitions shall have minimum STC rating of 49.

2-4.1.6 **Coffee Area.** Provide one. Area shall have countertop with kitchen sink; comply with ADA accessibility requirements. Area may be open to reception.

2-4.1.6.1 Function: Sink and space for coffee maker and supplies; for use by command section staff and visitors.

2-4.1.6.2 Adjacency requirements: Adjacent to reception area. Near CO, XO, and CSM offices. Locate to avoid conflicts with circulation pattern.

2-4.1.6.3 Furnishings/Fixtures/Equipment (FFE): Provide and design room to accommodate:

- minimum 1 200 mm wide x 600 mm deep plastic laminate or solid surface countertop,
- stainless steel kitchen sink.
- minimum 1 200 mm of base and wall cabinets; wall cabinets mounted to provide 600 mm clearance above countertop.
- dedicated electrical receptacle for coffee maker (coffee maker not in contract).

2-4.1.6.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: painted gypsum wallboard or painted veneer plaster.
- Ceiling: suspended acoustical panel ceiling.

2-4.1.6.5 Other requirements: None

2-4.2 **S-1 Section.** Provide one group of offices. In a two-story building locate S-1 Section on the second floor. Locate S-1 Section adjacent to S-2 and/or S-3 Sections. Command Section shall be accessed through the S-1 Clerical/Central Files area.

2-4.2.1 **S-1 Officer.** Provide one; 8.8 m². (Not included in FY 03 design). Room shall be accessed through the S-1 Clerical/Central Files area. Occupants: 1, and occasional visitors.

2-4.2.1.1 Function: Private office for S-1 officer.

2-4.2.1.2 Adjacency requirements: Adjacent to S-1 Clerical /Central Files. Near Command Section offices.

2-4.2.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1 675 x 915 with return 1 070 x 610,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.2.1.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.2.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.2.2 **S-1 Clerical/Central Files.** Provide one; 49.5 m². S-1 Clerical/Central Files shall be accessed from the lobby or corridor. The area shall have direct access to S-1 and Command Section private offices, and reception area. Occupants: 7 staff and occasional visitors.

2-4.2.2.1 Function: Open office area for S-1 admin staff; access to S-1 and Command offices.

2-4.2.2.2 Adjacency requirements: Adjacent to lobby or corridor. Adjacent to S-1 and Command private offices. Adjacent (and open to) reception area.

2-4.2.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- seven systems furniture workstations with nominal area of 6.0 m² each.

2-4.2.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.2.2.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-4.3 **S-2 Section.** Provide one group of offices. In a two-story building locate S-2 Section on the second floor. Locate S-2 Section adjacent to S-1 and/or S-3 Sections.

2-4.3.1 **S-2 Officer.** Provide one; 8.8 m². (Not included in FY 03 design). Room shall be accessed through the S-2 Clerical/Central Files area. Occupants: 1, and occasional visitors.

2-4.3.1.1 Function: Private office for S-2 officer.

2-4.3.1.2 Adjacency requirements: Adjacent to S-2 Clerical /Central Files.

2-4.3.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1 675 x 915 with return 1 070 x 610,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.3.1.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.3.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.3.2 **Office.** Provide two; each 8.8 m². Area may be a private office or a systems furniture workstation accessed through the S-2 Clerical/Central Files area. Occupants: 1 in each office.

2-4.3.2.1 Function: Private office for use by S-2 personnel.

2-4.3.2.2 Adjacency requirements: Adjacent to S-2 Clerical /Central Files.

2-4.3.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1 675 x 915 with return 1 070 x 610,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.3.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.3.2.5 Other requirements: Exterior window is desirable. If drywall partitions are used, provide 900 mm wide door into each room; door shall have entry function (F81) lockset. Drywall partitions shall have minimum STC rating of 49.

2-4.3.3 **S-2 Clerical/Central Files.** Provide one; 39.2 m². S-2 Clerical/Central Files shall be accessed from the lobby or corridor. The area shall have direct access to S-2 private offices, and the Secured Documents Vault. Occupants: 6 staff, and occasional visitors.

2-4.3.3.1 Function: Open office area for S-2 admin staff; access to other S-2 spaces.

2-4.3.3.2 Adjacency requirements: Adjacent to lobby or corridor. Adjacent to S-2 private offices and Secured Documents Vault.

2-4.3.3.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- six systems furniture workstations with nominal area of 6.0 m² each.

2-4.3.3.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.3.3.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-4.3.4 **Secured (Crypto)Documents Vault.** Provide one room; 10.3 m². Vault shall be certified for open storage of secret material. Class M Modular construction is acceptable. Provide Class 5 vault door with day gate. To allow future flexibility in reconfiguring offices areas, locate vault on the perimeter of the administrative areas. Occupants: 1.

2-4.3.4.1 Function: Storage of documents classified 'secret' and below. Workspace for one clerk.

2-4.3.4.2 Adjacency requirements: Adjacent to and accessed from S-2 Clerical/Central Files.

2-4.3.4.3 Furnishings/Fixtures/Equipment: Design room to accommodate:

- one desk 1 525 x 760
- shelving 300 x 5 000 total length
- File cabinets 3, 4 drawer legal size ,
- one desk chair.

2-4.3.4.4 Finishes:

- Floor: tile or vinyl composition tile
- Base: resilient base
- Walls: painted or pre-finished modular vault panels
- Ceiling: painted or pre-finished modular vault panels

2-4.3.4.5 Other requirements: Provide one SIPRNET connection. Intrusion Detection System is required; see Paragraph 9-6.

2-4.4 **S-3 Section.** Provide one group of offices. In a two-story building locate S-3 Section on the second floor. Locate S-3 Section adjacent to S-1 and/or S-2 Sections.

2-4.4.1 **S-3 Officer.** Provide one; 8.9 m². Room shall be accessed through the S-3 Clerical/Central Files area. Occupants: 1, and occasional visitors.

2-4.4.1.1 Function: Private office for S-3 officer.

2-4.4.1.2 Adjacency requirements: Adjacent to S-3 Clerical /Central Files.

2-4.4.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1 675 x 915 with return ,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.4.1.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.4.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.4.2 **S-3 Clerical/Central Files.** Provide one; 30.9 m². S-3 Clerical/Central Files shall be accessed from the lobby or corridor. The area shall have direct access to S-3 private offices. Occupants: 5 staff, and occasional visitors.

2-4.4.2.1 Function: Open office area for S-3 admin staff; access to S-3 offices.

2-4.4.2.2 Adjacency requirements: Adjacent to lobby or corridor. Adjacent to S-3 private offices.

2-4.4.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- five systems furniture workstations with nominal area of 6.0 m² each.

2-4.4.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.4.2.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-4.5 **Conference Room.** Provide one; 40.8 m². Room shall be located to allow direct access from the main corridor/lobby and the Command Section/S-1 Section. In a two-story building, conference room will be located on the second floor. Occupants: up to 26 persons.

2-4.5.1 Function: Conference room for battalion leadership, staff, and visitors. Functions will include staff meetings, hearings, disciplinary sessions, and training.

2-4.5.2 Adjacency requirements: Adjacent to lobby or main corridor, S-1 Section, Command Section. Near S-2 and S-3 Sections.

2-4.5.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- Conference table 1 220 x 5 490
- Side chairs 26

Provide and design room to accommodate:

- one marker board (minimum 2 400 mm wide x 1 200 mm high)
- one 2 400 mm wide wall mounted pull-down projection screen.

2-4.5.3 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.5.4 Other requirements: Provide 900 mm wide doors into room; doors shall have classroom function (F84) lockset. Partitions shall have minimum STC rating of 55. Minimum ceiling height 2 650 mm.

2-4.6 **S-4 Section.** Provide one group of offices. In a two-story building locate S-4 Section on the first floor. Locate S-4 Section adjacent to PAC Section.

2-4.6.1 **S-4 Officer.** Provide one; 9.0 m². Room shall be accessed through the S-4 Clerical/Central Files area. Occupants: 1, and occasional visitors.

2-4.6.1.1 Function: Private office for S-4 officer.

2-4.6.1.2 Adjacency requirements: Adjacent to S-4 Clerical /Central Files.

2-4.6.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1 675 with return 610,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.6.1.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.6.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.6.2 **S-4 Clerical/Central Files.** Provide one; 67.7 m². S-4 Clerical/Central Files shall be accessed from the lobby or corridor. The area shall have direct access to S-4 private offices. Occupants: 8 staff, and occasional visitors.

2-4.6.2.1 Function: Open office area for S-4 admin staff; access to S-4 offices.

2-4.6.2.2 Adjacency requirements: Adjacent to lobby or corridor. Adjacent to S-4 private offices.

2-4.6.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- eight systems furniture workstations with nominal area of 6.0 m² each.

2-4.6.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.6.2.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-4.6.3 **S-4 Storage & Supplies.** Provide one; 11.4 m² of general storage space. Room shall be under control of, and accessed from, S-4/Clerical/Central Files area.

2-4.6.3.1 Function: Storage of administrative files and general office supplies .

2-4.6.3.2 Adjacency requirements: Adjacent to S-4 Clerical/Central Files and building exterior.

2-4.6.3.3 Furnishings/Fixtures/Equipment: no requirement

2-4.6.3.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: suspended acoustical panel ceiling

2-4.6.4.4 Other requirements: Provide door pair, ea leaf 900 mm wide, into room from S-4/Clerical/Central Files. Doors shall have storeroom function (F86) locksets

2-4.7 **Personnel Administration Center (PAC) Section.** Provide one group of offices. In a two-story building locate PAC Section on the first floor. Locate PAC Section adjacent to S-4 Section.

2-4.7.1. **PAC Officer.** Provide one; 8.8 m². Room shall be accessed through the PAC Clerical/Central Files area. Occupants: 1, and occasional visitors.

2-4.7.1.1 Function: Private office for S-4 officer.

2-4.7.1.2 Adjacency requirements: Adjacent to PAC Clerical /Central Files.

2-4.7.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1 675 x 915 with return 1 070 x 610,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.7.1.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.7.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.7.2 **Office.** Provide one; each 11.2 m². Area may be a private office or a systems furniture workstation accessed through the PAC Clerical/Central Files area. Occupants: 1 in each office.

2-4.7.2.1 Function: Private office or systems furniture workstation for use by PAC personnel.

2-4.7.2.2 Adjacency requirements: Adjacent to PAC Clerical /Central Files

2-4.7.2.3 Furnishings/Fixtures/Equipment: Design each area to accommodate GFGL:

- one desk 1 675 x 915 with return 1 070 x 610,
- one bookcase 915 x 2 080 x 510,
- two legal-size four-drawer file cabinets,
- one side chair, and one desk chair.

2-4.7.2.4 Finishes:

- Floor: tile
- Base: resilient base

- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.7.2.5 Other requirements: Exterior window is desirable. If drywall partitions are used, provide 900 mm wide door into each room; door shall have entry function (F81) lockset. Drywall partitions shall have minimum STC rating of 49.

2-4.7.3 PAC Clerical/Central Files. Provide one; 74.6 m². S-4 Clerical/Central Files shall be accessed from the lobby or corridor. The area shall have direct access to PAC private offices. Occupants: 8 staff, and occasional visitors.

2-4.7.3.1 Function: Open office area for PAC admin staff; access to PAC offices and Message Mail Center.

2-4.7.3.2 Adjacency requirements: Adjacent to lobby or corridor. Adjacent to PAC private offices and Message Mail Center. Near Duty Officer.

2-4.7.3.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGI:

- eight systems furniture workstations, with nominal area of 6.0 m² each.

2-4.7.3.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.7.3.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm

2-4.7.4 Duty Officer. Provide one; 6.5 m². Room shall be accessed from the main lobby. Occupants: 1.

2-4.7.4.1 Function: Duty Officer will provide physical security of the building, and visual control of the entrances and lobby, as well as functioning as an information source for visitors.

2-4.7.4.2 Adjacency requirements: Adjacent to lobby and main entrance; near PAC Clerical /Central Files.

2-4.7.4.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGI:

- one desk 1 675 x 915 with return 1 070 x 610,
- one legal-size four-drawer file cabinet,
- one side chair, and one desk chair.

2-4.7.4.4 Finishes:

- Floor: tile
- Base: resilient base

- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.7.4.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset and glass vision panel. Provide duty officer counter (built-in casework) minimum 1 800 mm long separating the Duty Officer room from the lobby/corridor. The counter on the corridor side shall be minimum 1 500 mm wide x 1 000 mm high x 300 mm deep; provide locking overhead coiling shutter to secure the opening when unattended; shutter hood shall not be visible from corridor side.

2-4.7.5 **Message Mail Center.** Provide one; 24.0 m². Room shall be accessed from the PAC Clerical/Central Files area. Occupants: 2.

2-4.7.5.1 Function: Mail sorting and general administrative tasks.

2-4.7.5.2 Adjacency requirements: Adjacent to corridor and PAC Clerical /Central Files.

2-4.7.5.3 Furnishings/Fixtures/Equipment: no furniture requirements:

2-4.7.5.4 Finishes:

- Floor: vinyl composition tile, or porcelain tile
- Base: resilient base, or porcelain tile base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.7.5.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset and glass vision panel. Provide counter (built-in casework) minimum 1 800 mm long separating the Message Mail Center from the corridor. The counter on the corridor side shall be minimum 1 500 mm wide x 1 000 mm high x 300 mm deep; provide locking overhead coiling shutter to secure the opening when unattended; shutter hood shall not be visible from corridor side.

2-4.8 **Soldier Services.** Provide one group of offices. In a two-story building locate soldier services on the first floor. Soldier services are unrelated to other battalion administration functions.

2-4.8.1 **Chaplain's Assistant.** Provide one; 9.5 m². Room shall be accessed from the lobby or main corridor. Occupants: 1, and visitors.

2-4.8.1.1 Function: Private office for Chaplain's Assistant and waiting area for visitors to Chaplain's office.

2-4.8.1.2 Adjacency requirements: Adjacent to lobby or main corridor.

2-4.8.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGI:

- one desk 1 675 x 915 with return 1 070 x 610,
- one bookcase 915 x 2 080 x 510,
- four side chairs, and one desk chair.

2-4.8.1.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.8.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 55.

2-4.8.2 **Chaplain.** Provide one; 13.0 m². Room shall be accessed from the Chaplain's Assistant office. Occupants: 1, and visitors.

2-4.8.2.1 Function: Private office for Chaplain and visitors.

2-4.8.2.2 Adjacency requirements: Adjacent to Chaplain's Assistant. May have additional door to corridor.

2-4.8.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGI:

- one desk 1 675 x 915 with return 1 070 x 610,
- one bookcase 915 x 2 080 x 510,
- one desk chair,
- two side chairs

2-4.8.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-4.8.2.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-4.9 **Classroom Areas.** Provide one group of classrooms and adjacent Learning Resource Center for each battalion. In a two-story building locate Classroom Area on the first floor. Classrooms and Learning Resource Center will be accessed from the lobby or main corridor. The three classrooms shall be divided by operable panel partitions and provided with appropriate entrances and exits to allow two or three rooms to be combined for use as one large classroom. Classroom areas shall be located on the west end of the

building to provide immediate adjacency to classroom zones in BN HQ buildings constructed in preceding contracts.

2-4.9.1 Classroom. Provide three; total area 227 m², minimum area 74.0 m² each. Each classroom shall be located to allow direct access from the main corridor/lobby, and direct egress out of the building. In a two-story building, classrooms will be located on the first floor. Occupants: up to 60 persons in each room.

2-4.9.1.1 Function: Soldier training and other meetings.

2-4.9.1.2 Adjacency requirements: Adjacent to lobby or main corridor; adjacent to exterior wall. Locate all three classrooms together to allow use as larger room. Provide near by toilet rooms.

2-4.9.1.3 Furnishings/Fixtures/Equipment: Provide and design each room to accommodate:

- Walls separating classrooms shall be operable panel partitions with minimum STC rating of 47.
- one marker board (minimum 3 650 mm wide x 1 200 mm high)
- one 2 400 mm wide wall mounted pull-down projection screen
- wall mounted television support brackets for 27" monitor/television (NIC) and VCR (NIC)
- cable television outlets and electrical outlets wall mounted at each television support bracket.
- floor and wall mounted power and communications outlets to support computer use by all students. Floor outlets shall be flushed with finished surface and designed for foot, furniture and caster loads. Provide a minimum of 30 floor outlets in each classroom. Provide wall outlets in a raceway system that permits relocation of outlet position. Provide on set of power and communication outlets for each 2000 mm of wall length.

2-4.9.1.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling, and painted gypsum wallboard or painted veneer plaster

2-4.9.1.5 Other requirements: Provide 900 mm wide doors into room; doors shall have classroom function (F84) lockset. Permanent partitions shall have minimum STC rating of 49. Minimum ceiling height 2 600 mm at perimeter, 3 050 mm in main portion of room.

2-4.9.2 Learning Resource Center. Provide one; minimum area 34.9 m². Provide direct access from the main corridor/lobby. In a two-story building, Learning Resource Center will be located on the first floor. Occupants: up to 22 persons.

2-4.9.2.1 Function: Soldier training and other meetings.

2-4.9.2.2 Adjacency requirements: Adjacent to lobby or main corridor. Near classrooms and toilets.

2-4.9.2.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- Provide one marker board (minimum 2 400 mm wide x 1 200 mm high)
- one 2 400 mm wide wall mounted pull-down projection screen.
- no additional furniture requirements

2-4.9.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling, and painted gypsum wallboard or painted veneer plaster

2-4.9.2.5 Other requirements: Provide 900 mm wide doors into room; doors shall have classroom function (F84) lockset. Permanent partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm at perimeter, 3 050 mm in main portion of room.

2-4.10 **Battalion HQ Common Areas.** Provide the following areas in each building. Meet all ADA accessibility requirements in all common areas except janitor closet and shower rooms.

2-4.10.1 **Lobby and Corridors.** Provide as required to allow access to building spaces. Unless otherwise required, minimum width of main corridors providing access to classroom area shall not be less than 2 450 mm; minimum width of other main corridors shall not be less than 1 800 mm. Corridor width shall comply with applicable egress codes.

2-4.10.1.1 Function: Entry to the facility; egress and circulation through the building.

2-4.10.1.2 Adjacency requirements: Adjacent to main entrances and vertical circulation. It is preferable to enter lobby/main corridor from two sides of the building.

2-4.10.1.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- wall mounted electric water cooler (standard and accessible heights)
- mechanical and electrical systems to comply with applicable codes.
- fire extinguishers in semi-recessed fire extinguisher cabinets to comply with applicable codes.
- recessed space for three vending machines per building (machines are not in contract).
- interior signage to identify major spaces.
- two recessed trophy cases (minimum size: 2 400 mm wide x 1 500 high x 400 mm deep)
- one recessed building directory near each main entrance; in a two-story building, provide one recessed building directory near second floor elevator doors.
- one 1 200 mm high x 1 800 mm wide wall mounted bulletin board.

2-4.10.1.4 Finishes:

- Floor: porcelain tile, vinyl composition tile, or carpet.
- Base: porcelain tile, stained wood base, or resilient cove base.
- Walls: painted gypsum wallboard, or painted veneer plaster.
- Ceiling: suspended acoustical panel ceiling

2-4.10.1.5 Other requirements: Meet ADA accessibility requirements.

2-4.10.2 **Entry Vestibules.** Provide at each exterior entrance to lobby/main corridor area.

2-4.10.2.1 Function: Primary entry point into the facility; weather protection for interior spaces.

2-4.10.2.2 Adjacency requirements: Adjacent to lobby/main corridor.

2-4.10.2.3 Furnishings/Fixtures/Equipment: None.

2-4.10.2.4 Finishes:

- Floor: Provide recessed entry mat full depth of vestibule x full width of doors; porcelain tile, or quarry tile in remainder of room.
- Base: porcelain tile or quarry tile
- Walls: Match exterior wall finish material, or painted gypsum wallboard, or painted veneer plaster
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-4.10.2.5 Other requirements: Meet ADA accessibility requirements.

2-4.10.3 **Interior Stairs.** Provide as required to allow circulation to upper floor of the building, and to comply with applicable code egress requirements.

2-4.10.3.1 Function: Circulation and means of egress.

2-4.10.3.2 Adjacency requirements: Adjacent to corridors. Connects all floors of the building.

2-4.10.3.3 Furnishings/Fixtures/Equipment: Stairs shall be steel construction with concrete-filled treads, or cast-in-place concrete construction. Open risers are prohibited. Provide mechanical and electrical systems to comply with applicable codes.

2-4.10.3.4 Finishes:

- Landing floor: porcelain tile, quarry tile, resilient tile, vinyl composition tile, or sealed concrete.
- Base: porcelain tile, quarry tile, or resilient cove base.
- Treads: porcelain tile, quarry tile, resilient treads, or sealed concrete. Provide slip-resistant nosing if tile is used.
- Risers: painted steel, porcelain tile, quarry tile, or sealed concrete.
- Walls: painted gypsum wallboard, or painted concrete masonry units.
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-4.10.3.5 Other requirements: Stairs shall comply with ADA accessibility requirements and applicable codes. Railings shall be painted steel, or prefinished aluminum.

2-4.10.4 **Men's Toilet Room(s).** Provide one or more rooms, sized to accommodate at least the number of plumbing fixtures required. In a two-story structure, a minimum of one additional toilet fixture, one urinal and one lavatory shall be provided in a male toilet room on the second floor. Toilet rooms will be accessed from corridors. Arrange entrance to provide visual privacy.

2-4.10.4.1 Function: Restrooms for male occupants.

2-4.10.4.2 Adjacency requirements: Adjacent to corridor.

2-4.10.4.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- 3 lavatories
- 3 floor mounted toilets
- 3 wall-hung urinals
- Lavatories in single-occupant toilet rooms shall be wall-hung; lavatories in gang toilets shall be countertop mounted.
- Countertops shall be plastic laminate or solid surfacing material.
- Toilet partitions at each toilet, and urinal partitions between urinals.
- one mirror with shelf above each wall-hung lavatory; one continuous mirror full width of countertop at countertop mounted lavatories;
- one paper towel dispenser/waste receptacle per toilet room;
- one soap dispenser per lavatory;
- one toilet tissue dispenser per toilet;
- one robe hook on each toilet partition door.

2-4.10.4.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile, or 1 800 mm high ceramic tile wainscot with painted impact resistant gypsum wallboard or painted concrete masonry units above.
- Ceiling: painted Portland cement plaster, or painted gypsum wallboard or veneer plaster.

2-4.10.4.5 Other requirements: Provide sloped floors with floor drains located out of circulation path. Line of sight view of toilets or urinals from corridor is not acceptable.

2-4.10.5 **Women's Toilet Room(s).** Provide one or more rooms, sized to accommodate the number of plumbing fixtures required. In a two-story structure, women's toilet room(s) may be located on the first floor only. Toilet rooms will be accessed from corridors. Arrange entrance to provide visual privacy.

2-4.10.5.1 Function: Restrooms for female occupants.

2-4.10.5.2 Adjacency requirements: Adjacent to corridor.

2-4.10.5.3 Furnishings/Fixtures/Equipment: Provide and design room(s) to accommodate:

- 3 lavatories
- 3 floor mounted toilets
- Lavatories in single-occupant toilet rooms shall be wall-hung; lavatories in gang toilets shall be countertop mounted.
- Countertops shall be plastic laminate or solid surfacing material.
- toilet partitions at each toilet.
- one mirror with shelf above each wall-hung lavatory; one continuous mirror full width of countertop at countertop mounted lavatories;
- one paper towel dispenser/waste receptacle per toilet room;
- one soap dispenser per lavatory;
- one toilet tissue dispenser per toilet;
- one sanitary napkin disposal at each toilet;
- one robe hook on each toilet partition door.

2-4.10.5.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile, or 1829 mm high ceramic tile wainscot with painted impact resistant gypsum wallboard or painted concrete masonry units above.
- Ceiling: painted Portland cement plaster, or painted gypsum wallboard or veneer plaster.

2-4.10.5.5 Other requirements: Provide sloped floors with floor drains located out of circulation path. Line of sight view of toilets or urinals from corridor is not acceptable

2-4.10.6 **Shower Room(s).** Provide a minimum of three single occupant shower rooms. One of these shall meet all ADA accessibility requirements. All other shower rooms shall be used by able-bodied military personnel only. Provide one common (male occupants only) shower/locker room with a minimum of three individual shower stalls. Rooms shall be accessed from Administrative Area Corridor. Shower room shall not be combined with toilet rooms. In a two-story building, shower rooms may be located on first and second floors.

2-4.10.6.1 Function: Shower and dressing rooms for use by battalion staff.

2-4.10.6.2 Adjacency requirements: Adjacent to corridor. Near toilets.

2-4.10.6.3 Furnishings/Fixtures/Equipment: Provide and design rooms to accommodate:

- 6 ceramic tile shower stall with rod and shower curtain.
- ceramic soap holder and wall mounted grab bar at each stall
- dressing area at single occupant shall have bench, four towel/robe hooks, and wall mounted full-length mirror.
- dressing area at common access shower room shall have bench, six lockers, and wall mounted full-length mirror.

2-4.10.6.4 Finishes:

- Floor: ceramic tile.
- Base: ceramic tile.
- Walls: ceramic tile
- Ceiling: painted Portland cement plaster.

2-4.10.6.5 Other requirements: Provide sink in common access shower room.

2-4.10.7 **Janitor Closet.** Provide one on each floor of the building. Minimum area: 2.4 m². Room shall be accessed from the corridor.

2-4.10.7.1 Function: Sink and storage of cleaning supplies, soap, paper products.

2-4.10.7.2 Adjacency requirements: Near toilets and shower rooms.

2-4.10.7.3 Furnishings/Fixtures/Equipment: Provide and configure rooms to accommodate:

- one floor mounted mop sink,
- mop rack for two mops,
- minimum 1 800 linear mm of wall mounted stainless steel shelving.

2-4.10.7.4 Finishes:

- Floor: ceramic tile, or sealed concrete
- Base: resilient cove base, or ceramic tile base
- Walls: painted water-resistant gypsum wallboard, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster

2-4.10.7.5 Other requirements: Door shall have classroom function (F84) lockset.

2-4.10.8 **Storage.** Provide minimum 4.6 m² of general storage space. In a two-story building provide half of the area on each floor. Storage rooms will be accessed from the corridor.

2-4.10.8.1 Function: Storage of general office supplies for the battalion.

2-4.10.8.2 Adjacency requirements: Adjacent to corridor.

2-4.10.8.3 Furnishings/Fixtures/Equipment: no requirements:

2-4.10.8.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: suspended acoustical panel ceiling

2-4.10.8.5 Other requirements: Door shall have storeroom function (F86) lockset.

2-4.11 Battalion HQ Support Areas. Provide the following areas in each battalion HQ building. Accessibility consistent with the ADA is not required in mechanical rooms, electrical rooms, communications closets, and elevator machine room. All other support spaces shall be handicap accessible.

2-4.11.1 Mechanical Room(s). Provide dedicated areas for mechanical equipment. Mechanical rooms shall not be used for storage or other purposes. Access will be limited to authorized personnel. Size and locate room(s) to allow equipment removal and maintenance. Provide floor openings and vertical shaft spaces as necessary. Main mechanical room shall be located on the ground floor.

2-4.11.1.1 Function: Spaces for HVAC, water heating, and other plumbing and mechanical equipment.

2-4.11.1.2 Adjacency requirements: Locate to allow efficient distribution. Mechanical rooms located on the ground floor shall have a door pair (900 mm minimum width for each leaf) opening to the exterior. Mechanical rooms on second floor shall be accessed from corridors.

2-4.11.1.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-4.11.1.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base.
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required

2-4.11.1.5 Other requirements: Doors shall have storeroom function (F86) locksets.

2-4.11.2 Electrical Room(s). Provide dedicated areas for electrical equipment. The main electrical room for the building shall contain the service entrance, metering equipment, and main distribution panel. Metering equipment shall be integrated and coordinated with the existing UMCS/EMCS system. Electrical rooms shall not be used for storage or other purposes. Access will be limited to authorized personnel. Size and locate room(s) to allow equipment removal and maintenance. Main electrical room shall be located on the ground floor.

2-4.11.2.1 Function: Spaces for electrical equipment.

2-4.11.2.2 Adjacency requirements: Locate to allow efficient distribution. Main electrical room on the ground floor shall be accessed from the exterior. All other electrical rooms shall be accessed from corridors.

2-4.11.2.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-4.11.2.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base

- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required.

2-4.11.2.5 Other requirements: Electrical service to buildings shall be underground. Doors shall have storeroom function (F86) locksets.

2-4.11.3 Communication Room. Provide dedicated room(s) for communication distribution equipment. Each room shall not be combined with mechanical or electrical rooms. Provide each battalion with one main communication room; minimum size 3240mm x 3888mm. In two-story buildings, the main communication room shall be located on the first floor and secondary rooms shall be on the each floor. Provide additional communication rooms as needed; all spaces having telephone or computer data outlets shall be located to allow a maximum cable length of 90 meters between outlet and communication room. Minimum dimensions of secondary communication rooms shall be in accordance with ANSI EIA/TIA 569-A but not less than 3240mm x 3240mm. Provide floor openings and vertical shaft spaces as necessary. Rooms shall be accessed from corridors. Exterior access is prohibited. Access will be limited to authorized personnel.

2-4.11.3.1 Function: Distribution areas for telephone, data network, and cable television.

2-4.11.3.2 Adjacency requirements: Adjacent to corridor. Locate to allow efficient distribution.

2-4.11.3.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-4.11.3.4 Finishes:

- Floor: vinyl composition tile.
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or suspended acoustical panel ceiling

2-4.11.3.5 Other requirements: Door shall have minimum 900 mm wide door with storeroom function (F86) lockset. Provide three 102 mm empty conduits connecting vertically stacked communication rooms. Communication rooms shall be compliant with ANSI EIA/TIA 569-A.

2-4.11.4 Elevator Machine Room. Provide one in each two-story battalion HQ building. Size to comply with equipment and code requirements.

2-4.11.4.1 Function: Space for hydraulic elevator equipment.

2-4.11.4.2 Adjacency requirements: Adjacent to elevator and corridor.

2-4.11.4.3 Furnishings/Fixtures/Equipment: As required by Statement of Work

2-4.11.4.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required.

2-4.11.4.5 Other requirements: Partition walls shall have a minimum STC rating of 45.

2-4.11.5 **Elevator.** Provide one hydraulic passenger elevator.

2-4.11.5.1 Function: Vertical conveyance of people and furniture.

2-4.11.5.2 Adjacency requirements: Adjacent to lobby or main corridor.

2-4.11.5.3 Furnishings/Fixtures/Equipment: Provide and design space to accommodate:

Passenger elevator: 2,500 lb. capacity, minimum 75 feet per minute speed; center opening doors. Refer to Chapter 5 for additional requirements.

2-4.11.5.4 Cab finishes:

- Floor: tile
- Walls: plastic laminate
- Ceiling: suspended aluminum egg crate
- Car door and front: satin finish stainless steel
- Hoistway entrance doors and frame: satin finish stainless steel

2-4.11.5.5 Other requirements: Meet ADA requirements for accessibility.

2-5 **BATTALION HEADQUARTERS – GENERAL ADMINISTRATION VARIANT - (BN GA) FUNCTIONAL AND AREA REQUIREMENTS.**

The Battalion Headquarters General Administration variant (BN GA) building shall consist of administrative open office areas, two document vaults, a conference room and support spaces. Total gross area of the building shall not exceed 1 524 m². Building shall be two stories in height. Distribution of various rooms that are in common with the BN HQ shall be located in the same position and the same size. One elevator is required. To the greatest extent possible, this building shall be arranged to allow future reconfiguration to support full battalion functionality matching the BN HQ version in this project. Internal reorganizations of fixed elements such as toilets, equipment rooms, and core areas shall be avoided. Locate and organize administrative spaces to maximize furniture flexibility. Any partitions separating administrative spaces should not be bearing walls.

Leadership and staff will manage the organization, receive visitors, and conduct the business of the occupant units from the administrative areas. Soldiers will visit the facility to conduct administrative business. Military personnel will staff the facility; military and non-military personnel will visit the facility. Although only able-bodied military personnel will be on staff,

all spaces except shower rooms, and utility areas (janitor closets, mechanical, electrical, communication, and elevator machine rooms) shall comply with ADA accessibility requirements. In addition, at least one fully accessible shower room shall be provided.

Net room sizes listed below are consistent with the concept design for a BN GA provided with this RFP (see Attachment 4). The space tabulation spreadsheet (see Attachment 4) is consistent with the room areas that are listed in this chapter. All areas are the minimum requirement. Offerors shall meet or exceed the specific minimum areas presented. Areas without specific area designation shall be designed for functional use and conformance with building and life safety codes. Regardless of the net room areas presented, the gross building area may not exceed the programmatic limitations listed above.

NOTE: This Battalion Headquarters (General Administration) variant is located on the north side of the Training Area. For discussion of the Battalion Headquarters (BN HQ) that is located on the south side of the Training Area, refer to paragraph 2-4. The BN GA variant design, while the same building in structure and exterior appearance as the BN HQ, has significantly different requirements for floor plan and function.

Functions and areas of the BN GA are as follows:

2-5.1 Command Section. Provide a single office on the second floor, without accompanying reception area, coffee area and private toilet.

2-5.1.1 Commanding Officer (CO). Provide one; 22.8 m². Room shall be accessed through Open Office Area. Occupants: 1, and occasional visitors.

2-5.1.1.1 Function: Private office for commanding officer.

2-5.1.1.2 Adjacency requirements: Adjacent to Open Office Area and Conference Room.

2-5.1.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk: 1 830 x 915
- one credenza 1 830 x 610
- one bookcase 915 x 2 080 x 510
- two legal-size four-drawer file cabinets,
- one conference table 915 x 1 830,
- six side chairs, and one desk chair.

2-5.1.1.4 Finishes:

- Floor: tile
- Base: resilient base or wood base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-5.1.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Room shall have exterior window. Partitions shall have minimum STC rating of 55.

2-5.1.2 Conference Room. Provide one; 40.8 m². Room shall be located to allow direct access from the second floor lobby and the Command Section. In a two-story building, conference room will be located on the second floor. Occupants: up to 26 persons.

2-5.1.2.1 Function: Conference room for leadership, staff, and visitors. Functions will include staff meetings, hearings, disciplinary sessions, and training.

2-5.1.2.2 Adjacency requirements: Adjacent to upper lobby or main corridor and Command Section.

2-5.1.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGI:

- Conference table 1 220 x 5 490
- Side chairs 26
- Provide and design room to accommodate:
- one marker board (minimum 2 400 mm wide x 1 200 mm high)
- one 2 400 mm wide wall mounted pull-down projection screen.

2-5.1.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-5.1.2.5 Other requirements: Provide 900 mm wide doors into room; doors shall have classroom function (F84) lockset. Partitions shall have minimum STC rating of 55. Minimum ceiling height 2 650 mm.

2-5.2 Special Function Rooms. Provide the following special function and/or construction rooms:

2-5.2.1 Secured Documents Vaults. Provide two rooms, one per floor, each 10.3 m² stacked vertically. Vaults shall be certified for open storage of secret material. Class M Modular construction is acceptable. Provide Class 5 vault door with day gate. To allow future flexibility in reconfiguring offices areas, locate vault on the perimeter of the administrative areas. Occupants: 1 per room.

2-5.2.1.1 Function: Storage of documents classified 'secret' and below. Workspace for one clerk in each vault.

2-5.2.1.2 Adjacency requirements: Adjacent to and accessed from Open Office Areas.

2-5.2.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate:

- one desk 1 525 x 760
- shelving 300 x 5 000 total length
- File cabinets 3, 4 drawer legal size ,
- one desk chair.

2-5.2.1.4 Finishes:

- Floor: tile or vinyl composition tile
- Base: resilient base
- Walls: painted or pre-finished modular vault panels
- Ceiling: painted or pre-finished modular vault panels

2-5.2.1.5 Other requirements: Provide one SIPRNET connection in each vault. Accessing the vaults directly from corridor is prohibited.

2-5.2.2 Conference Room (1st Floor). In place of the "Learning Resource Center" room included in the design for the BN HQ facility, provide a conference room. Room shall have a minimum area of 34.9 m². Provide direct access from the main corridor/lobby and Open Office Area 1. Occupants: up to 22 persons.

2-5.2.2.1 Function: Soldier training and other meetings.

2-5.2.2.2 Adjacency requirements: Adjacent to lobby or main corridor. Near classrooms and toilets.

2-5.2.2.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- Provide one marker board (minimum 2 400 mm wide x 1 200 mm high)
- one 2 400 mm wide wall mounted pull-down projection screen.
- no additional furniture requirements

2-5.2.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling, and painted gypsum wallboard or painted veneer plaster

2-5.2.2.5 Other requirements: Provide 900 mm wide doors into room; doors shall have classroom function (F84) lockset. Permanent partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm at perimeter, 3 050 mm in main portion of room.

2-5.2.3 Duty Officer. Provide one; 6.6 m². Room shall be accessed from the main lobby. Occupants: 1.

2-5.2.3.1 Function: Duty Officer will provide physical security of the building, and visual control of the entrances and lobby, as well as functioning as an information source for visitors.

2-5.2.3.2 Adjacency requirements: Adjacent to lobby and main entrance; near PAC Clerical /Central Files.

2-5.2.3.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- one desk 1 675 x 915 with return 1 070 x 610,
- one legal-size four-drawer file cabinet,
- one side chair, and one desk chair.

2-5.2.3.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-5.2.3.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset and glass vision panel. Provide duty officer counter (built-in casework) minimum 1 800 mm long separating the Duty Officer room from the lobby/corridor. The counter on the corridor side shall be minimum 1 500 mm wide x 1 000 mm high x 300 mm deep; provide locking overhead coiling shutter to secure the opening when unattended; shutter hood shall not be visible from corridor side.

2-5.3 **Open Office Areas.** Provide the following open office areas with design consistent with flexible installation of systems furniture or modular components. Mechanical, electrical and communications design shall be sized and configured to accommodate a minimum of one occupant per 9.5 m² of floor area.

2-5.3.1 **Open Office 1.** Provide one; 227 m². Open Office 1 shall be created in the area occupied by classrooms in the BN HQ building version. All built in features and systems consistent with the classroom configuration (including movable wall partitions) shall be installed in this space for future use in a classroom conversion. This area shall be accessed from the lobby or corridor.

2-5.3.1.1 Function: Open office area for normal administrative functions.

2-5.3.1.2 Adjacency requirements: Adjacent to lobby or corridor.

2-5.3.1.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- Up to twenty four (24) systems furniture workstations with nominal area of 6.0 m² each.

2-5.3.1.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-5.3.1.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-5.3.2 Open Office 2. Provide one; 100 m². This area shall be accessed from the lobby or main corridor. Maximize opportunity for natural light.

2-5.3.2.1 Function: Open office area for normal administrative functions.

2-5.3.2.2 Adjacency requirements: Adjacent to lobby or corridor.

2-5.3.2.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- Up to ten (10) systems furniture workstations with nominal area of 6.0 m² each.

2-5.3.2.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-5.3.2.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-5.3.3 Open Office 3. Provide one; 120 m². This area shall be accessed from the lobby or main corridor. Maximize opportunity for natural light.

2-5.3.3.1 Function: Open office area for normal administrative functions.

2-5.3.3.2 Adjacency requirements: Adjacent to lobby or corridor.

2-5.3.3.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- Up to twelve (12) systems furniture workstations with nominal area of 6.0 m² each.

2-5.3.3.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-5.3.3.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-5.3.4 Open Office 4. Provide one; 101 m². This area shall be accessed from the lobby or main corridor. Maximize opportunity for natural light.

2-5.3.4.1 Function: Open office area for normal administrative functions.

2-5.3.4.2 Adjacency requirements: Adjacent to lobby or corridor.

2-5.3.4.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- Up to ten (10) systems furniture workstations with nominal area of 6.0 m² each.

2-5.3.4.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-5.3.4.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-5.3.5 **Open Office 5.** Provide one; 103 m². This area shall be accessed from the lobby or main corridor. Maximize opportunity for natural light.

2-5.3.5.1 Function: Open office area for normal administrative functions.

2-5.3.5.2 Adjacency requirements: Adjacent to lobby or corridor.

2-5.3.5.3 Furnishings/Fixtures/Equipment: Design room to accommodate GFGL:

- Up to ten (10) systems furniture workstations with nominal area of 6.0 m² each.

2-5.3.5.4 Finishes:

- Floor: tile
- Base: resilient base
- Walls: painted gypsum wallboard or painted veneer plaster
- Ceiling: suspended acoustical panel ceiling

2-5.3.5.5 Other requirements: Provide 900 mm wide door into room; door shall have entry function (F81) lockset. Exterior window is desirable. Partitions shall have minimum STC rating of 49. Minimum ceiling height 2 650 mm.

2-5.4 **Battalion GA Common Areas.** Provide the following areas in each building. Meet all ADA accessibility requirements in all common areas except janitor closet and shower rooms. One shower room shall be configured consistent with ADAAG requirements.

2-5.4.1 **Lobby and Corridors.** Provide as required to allow access to building spaces. Unless otherwise required, minimum width of main corridors providing access to classroom area shall not be less than 2 450 mm; minimum width of other main corridors shall not be less than 1 800 mm. Corridor width shall comply with applicable egress codes.

2-5.4.1.1 Function: Entry to the facility; egress and circulation through the building.

2-5.4.1.2 Adjacency requirements: Adjacent to main entrances and vertical circulation. It is preferable to enter lobby/main corridor from two sides of the building.

2-5.4.1.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- wall mounted electric water cooler (standard and accessible heights)
- mechanical and electrical systems to comply with applicable codes.
- fire extinguishers in semi-recessed fire extinguisher cabinets to comply with applicable codes.
- recessed space for three vending machines per building (machines are not in contract).
- interior signage to identify major spaces.
- two recessed trophy cases (minimum size: 2 400 mm wide x 1 500 high x 400 mm deep)
- one recessed building directory near each main entrance; in a two-story building, provide one recessed building directory near second floor elevator doors.
- one 1 200 mm high x 1 800 mm wide wall mounted bulletin board.

2-5.4.1.4 Finishes:

- Floor: porcelain tile, vinyl composition tile, or tile.
- Base: porcelain tile, stained wood base, or resilient cove base.
- Walls: painted gypsum wallboard, or painted veneer plaster.
- Ceiling: suspended acoustical panel ceiling

2-5.4.1.5 Other requirements: Meet ADA accessibility requirements.

2-5.4.2 **Entry Vestibules.** Provide at each exterior entrance to lobby/main corridor area.

2-5.4.2.1 Function: Primary entry point into the facility; weather protection for interior spaces.

2-5.4.2.2 Adjacency requirements: Adjacent to lobby/main corridor.

2-5.4.2.3 Furnishings/Fixtures/Equipment: None.

2-5.4.2.4 Finishes:

- Floor: Provide recessed entry mat full depth of vestibule x full width of doors; porcelain tile, or quarry tile in remainder of room.
- Base: porcelain tile or quarry tile
- Walls: Match exterior wall finish material, or painted gypsum wallboard, or painted veneer plaster
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-5.4.2.5 Other requirements: Meet ADA accessibility requirements.

2-5.4.3 **Interior Stairs.** Provide as required to allow circulation to upper floor of the building, and to comply with applicable code egress requirements. Exterior stairs are prohibited.

2-5.4.3.1 Function: Circulation and means of egress.

2-5.4.3.2 Adjacency requirements: Adjacent to corridors. Connects all floors of the building.

2-5.4.3.3 Furnishings/Fixtures/Equipment: Stairs shall be steel construction with concrete-filled treads, or cast-in-place concrete construction. Open risers are prohibited. Provide mechanical and electrical systems to comply with applicable codes.

2-5.4.3.4 Finishes:

- Landing floor: porcelain tile, quarry tile, resilient tile, vinyl composition tile, or sealed concrete.
- Base: porcelain tile, quarry tile, or resilient cove base.
- Treads: porcelain tile, quarry tile, resilient treads, or sealed concrete. Provide slip-resistant nosing if tile is used.
- Risers: painted steel, porcelain tile, quarry tile, or sealed concrete.
- Walls: painted gypsum wallboard, or painted concrete masonry units.
- Ceiling: suspended acoustical panel ceiling, painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster.

2-5.4.3.5 Other requirements: Stairs shall comply with ADA accessibility requirements and applicable codes. Railings shall be painted steel, or prefinished aluminum.

2-5.4.4 **Men's Toilet Room(s).** Provide one or more rooms, sized to accommodate at least the number of plumbing fixtures required. In a two-story structure, a minimum of one additional toilet fixture, one urinal and one lavatory shall be provided in a male toilet room on the second floor. Toilet rooms will be accessed from corridors. Arrange entrance to provide visual privacy.

2-5.4.4.1 Function: Restrooms for male occupants.

2-5.4.4.2 Adjacency requirements: Adjacent to corridor.

2-5.4.4.3 Furnishings/Fixtures/Equipment: Provide and design room to accommodate:

- 3 lavatories
- 3 floor mounted toilets
- 3 wall-hung urinals
- Lavatories in single-occupant toilet rooms shall be wall-hung; lavatories in gang toilets shall be countertop mounted.
- Countertops shall be plastic laminate or solid surfacing material.
- Toilet partitions at each toilet, and urinal partitions between urinals.
- one mirror with shelf above each wall-hung lavatory; one continuous mirror full width of countertop at countertop mounted lavatories;
- one paper towel dispenser/waste receptacle per toilet room;
- one soap dispenser per lavatory;
- one toilet tissue dispenser per toilet;
- one robe hook on each toilet partition door.

2-5.4.4.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile, or 1 800 mm high ceramic tile wainscot with painted impact resistant gypsum wallboard or painted concrete masonry units above.

- Ceiling: painted Portland cement plaster, or painted gypsum wallboard or veneer plaster.

2-5.4.4.5 Other requirements: Provide sloped floors with floor drains located out of circulation path. Line of sight view of toilets or urinals from corridor is not acceptable.

2-5.4.5 **Women's Toilet Room(s).** Provide one or more rooms, sized to accommodate the number of plumbing fixtures required. In a two-story structure, women's toilet room(s) may be located on the first floor only. Toilet rooms will be accessed from corridors. Arrange entrance to provide visual privacy.

2-5.4.5.1 Function: Restrooms for female occupants.

2-5.4.5.2 Adjacency requirements: Adjacent to corridor.

2-5.4.5.3 Furnishings/Fixtures/Equipment: Provide and design room(s) to accommodate:

- 3 lavatories
- 3 floor mounted toilets
- Lavatories in single-occupant toilet rooms shall be wall-hung; lavatories in gang toilets shall be countertop mounted.
- Countertops shall be plastic laminate or solid surfacing material.
- toilet partitions at each toilet.
- one mirror with shelf above each wall-hung lavatory; one continuous mirror full width of countertop at countertop mounted lavatories;
- one paper towel dispenser/waste receptacle per toilet room;
- one soap dispenser per lavatory;
- one toilet tissue dispenser per toilet;
- one sanitary napkin disposal at each toilet;
- one robe hook on each toilet partition door.

2-5.4.5.4 Finishes:

- Floor: porcelain tile, or ceramic tile.
- Base: porcelain tile, or ceramic tile.
- Walls: ceramic tile, or 1829 mm high ceramic tile wainscot with painted impact resistant gypsum wallboard or painted concrete masonry units above.
- Ceiling: painted Portland cement plaster, or painted gypsum wallboard or veneer plaster.

2-5.4.5.5 Other requirements: Provide sloped floors with floor drains located out of circulation path. Line of sight view of toilets or urinals from corridor is not acceptable

2-5.4.6 **Shower Room(s).** Provide a minimum of three single occupant shower rooms on first floor. One of these shall meet all ADA accessibility requirements. All other shower rooms shall be used by able-bodied military personnel only. Provide one common (male occupants only) shower/locker room with a minimum of three individual shower stalls on second floor. Rooms shall be accessed from Administrative Area Corridor. Shower room shall not be combined with toilet rooms. In a two-story building, shower rooms may be located on first and second floors.

2-5.4.6.1 Function: Shower and dressing rooms for use by battalion staff.

2-5.4.6.2 Adjacency requirements: Adjacent to corridor. Near toilets.

2-5.4.6.3 Furnishings/Fixtures/Equipment: Provide and design rooms to accommodate:

- 6 ceramic tile shower stall with rod and shower curtain.
- ceramic soap holder and wall mounted grab bar at each stall
- dressing area at single occupant shall have bench, four towel/robe hooks, and wall mounted full-length mirror.
- dressing area at common access shower room shall have bench, six lockers, and wall mounted full-length mirror.

2-5.4.6.4 Finishes:

- Floor: ceramic tile.
- Base: ceramic tile.
- Walls: ceramic tile
- Ceiling: painted Portland cement plaster.

2-5.4.6.5 Other requirements: Provide sink in common access shower room.

2-5.4.7 **Janitor Closet.** Provide one on each floor of the building. Minimum area: 2.4 m².
Room shall be accessed from the corridor.

2-5.4.7.1 Function: Sink and storage of cleaning supplies, soap, paper products.

2-5.4.7.2 Adjacency requirements: Near toilets and shower rooms.

2-5.4.7.3 Furnishings/Fixtures/Equipment: Provide and configure rooms to accommodate:

- one floor mounted mop sink,
- mop rack for two mops,
- minimum 1 800 linear mm of wall mounted stainless steel shelving.

2-5.4.7.4 Finishes:

- Floor: ceramic tile, or sealed concrete
- Base: resilient cove base, or ceramic tile base
- Walls: painted water-resistant gypsum wallboard, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or painted Portland cement plaster

2-5.4.7.5 Other requirements: Door shall have classroom function (F84) lockset.

2-5.4.8 **Storage.** Provide minimum 4.6 m² of general storage space. In a two-story building provide half of the area on each floor. Storage rooms will be accessed from the corridor.

2-5.4.8.1 Function: Storage of general office supplies for the battalion.

2-5.4.8.2 Adjacency requirements: Adjacent to corridor.

2-5.4.8.3 Furnishings/Fixtures/Equipment: no requirements:

2-5.4.8.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: suspended acoustical panel ceiling

2-5.4.8.5 Other requirements: Door shall have storeroom function (F86) lockset.

2-5.5 Battalion HQ Support Areas. Provide the following areas in each battalion HQ building. Accessibility consistent with the ADA is not required in mechanical rooms, electrical rooms, communications closets, and elevator machine room. All other support spaces shall be handicap accessible.

2-5.5.1 Mechanical Room(s). Provide dedicated areas for mechanical equipment. Mechanical rooms shall not be used for storage or other purposes. Access will be limited to authorized personnel. Size and locate room(s) to allow equipment removal and maintenance. Provide floor openings and vertical shaft spaces as necessary. Main mechanical room shall be located on the ground floor.

2-5.5.1.1 Function: Spaces for HVAC, water heating, and other plumbing and mechanical equipment.

2-5.5.1.2 Adjacency requirements: Locate to allow efficient distribution. Mechanical rooms located on the ground floor shall have a door pair (900 mm minimum width for each leaf) opening to the exterior. Mechanical rooms on second floor shall be accessed from corridors.

2-5.5.1.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-5.5.1.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base.
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required

2-5.5.1.5 Other requirements: Doors shall have storeroom function (F86) locksets.

2-5.5.2 Electrical Room(s). Provide dedicated areas for electrical equipment. The main electrical room for the building shall contain the service entrance, metering equipment, and main distribution panel. Metering equipment shall be integrated and coordinated with the existing UMCS/EMCS system. Electrical rooms shall not be used for storage or other purposes. Access will be limited to authorized personnel. Size and locate room(s) to allow equipment removal and maintenance. Main electrical room shall be located on the ground floor.

2-5.5.2.1 Function: Spaces for electrical equipment.

2-5.5.2.2 Adjacency requirements: Locate to allow efficient distribution. Main electrical room on the ground floor shall be accessed from the exterior. All other electrical rooms shall be accessed from corridors.

2-5.5.2.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-5.5.2.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required.

2-5.5.2.5 Other requirements: Electrical service to buildings shall be underground. Doors shall have storeroom function (F86) locksets.

2-5.5.3 **Communication Room.** Provide dedicated room(s) for communication distribution equipment. Each room shall not be combined with mechanical or electrical rooms. Provide each battalion with one main communication room; minimum size 3 050 mm x 3650 mm on the first floor. In two-story buildings, a second communication room shall be located on the second floor. Provide additional communication rooms as needed; all spaces having telephone or computer data outlets shall be located to allow a maximum cable length of 90 meters between outlet and communication room. Minimum dimensions of secondary communication rooms shall be 2750 mm x 3 050 mm. Provide floor openings and vertical shaft spaces as necessary. Rooms shall be accessed from corridors. Exterior access is prohibited. Access will be limited to authorized personnel.

2-5.5.3.1 Function: Distribution areas for telephone, data network, and cable television.

2-5.5.3.2 Adjacency requirements: Adjacent to corridor. Locate to allow efficient distribution.

2-5.5.3.3 Furnishings/Fixtures/Equipment: As required by Statement of Work.

2-5.5.3.4 Finishes:

- Floor: vinyl composition tile.
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: painted gypsum wallboard, painted veneer plaster, or suspended acoustical panel ceiling

2-5.5.3.5 Other requirements: Door shall have minimum 900 mm wide door with storeroom function (F86) lockset. Provide three 102 mm empty conduits connecting vertically stacked communication rooms. Communications rooms shall be compliant with ANSI EIA/TIA 569-A.

2-5.5.4 Elevator Machine Room. Provide one. Size to comply with equipment and code requirements.

2-5.5.4.1 Function: Space for hydraulic elevator equipment.

2-5.5.4.2 Adjacency requirements: Adjacent to elevator and corridor.

2-5.5.4.3 Furnishings/Fixtures/Equipment: As required by Statement of Work

2-5.5.4.4 Finishes:

- Floor: sealed concrete
- Base: resilient cove base
- Walls: painted gypsum wallboard or painted veneer plaster, or painted concrete masonry units
- Ceiling: none required.

2-5.5.4.5 Other requirements: Partition walls shall have a minimum STC rating of 45.

2-5.5.5 Elevator. Provide one hydraulic passenger elevator.

2-5.5.5.1 Function: Vertical conveyance of people and furniture.

2-5.5.5.2 Adjacency requirements: Adjacent to lobby or main corridor.

2-5.5.5.3 Furnishings/Fixtures/Equipment: Provide and design space to accommodate:

- Passenger elevator: 2,500 lb. capacity, minimum 75 feet per minute speed; center opening doors. Refer to Chapter 5 for additional requirements.

2-5.5.5.4 Cab finishes:

- Floor: tile
- Walls: plastic laminate
- Ceiling: suspended aluminum egg crate
- Car door and front: satin finish stainless steel
- Hoistway entrance doors and frame: satin finish stainless steel

2-5.5.5.5 Other requirements: Meet ADA requirements for accessibility.

2-6 Lawnmower Storage Building. Provide four separate, enclosed, weatherproof storage buildings, with attached covered recycling collection areas and three sided dumpster enclosure. Dumpster enclosure will typically be used for one 10 cubic yard dumpster (1 830 mm W x 1 680 mm D x 2 140 mm H) however, the enclosure shall be sized to accommodate two 10 cubic yard dumpsters. Reference drawing A501 in Attachment 5 for an example of this building type. Drawing is provided for illustration only. Offeror is free to propose other designs, however, buildings of this type used on Echo block shall be consistent with, and complementary to, similar structures constructed as part of the FY 02 and FY 03 programs.

2-6.1 Function: Enclosed storage for the following items (not in contract): lawn mowers, landscape maintenance equipment, snow removal equipment, tools, and one flammable storage cabinet for storing maximum of one five-gallon safety can of gasoline, and twelve one-quart containers of motor oil. Centralized collection point and storage for recyclable materials. Aesthetic enclosure of dumpster.

2-6.2 Adjacency requirements: Locate remote from UEPH and other occupied buildings (COF's and Battalion HQ), yet within normal pedestrian pathway between UEPH/SCB and POV parking area(s). Locate the lawnmower storage building adjacent to access drive or parking lot to facilitate maneuvering of garbage and recycling trucks. Comply with building code setback requirements. Provide minimum force protection separation of 25 meters between UEPH buildings and the dumpster. Building shall also meet force protection separation distances for other inhabited buildings.

2-6.3 Furnishings/Fixtures/Equipment:

- Provide one interior light fixture with safety cage, controlled by occupancy sensor switch.
- Provide exterior electrical receptacles.
- Provide freeze resistant hose bib inside dumpster enclosure

2-6.4 Building materials:

- Floor: sealed concrete slab on grade.
- Exterior wall material: match materials used on buildings.
- Structure: Non-combustible materials. Fire-retardant wood or plywood shall not be used.
- Roofing: match roof of UEPH building.
- Interior wall finish: painted impact resistant gypsum wallboard or painted concrete masonry units.
- Ceiling: painted exposed structure.

2-6.5 Other Requirements:

- Provide wall louvers to allow natural cross-ventilation.
- Roof penetrations are not acceptable.
- Gates of any type on dumpster enclosure are not acceptable.
- Provide hollow metal door pair and frame with storeroom function (F86) lockset.
- Comply with NFPA 30 requirements for storage of flammable materials.
- Provide minimum 1 200 mm wide sidewalk from entry door to adjacent pavement or sidewalk.
- Provide bracket-mounted fire extinguisher on interior.
- Recycling storage area(s) shall be weather protected with extension of building roof.
- Recycling area(s) shall provide area for 6 fifty gallon, wheeled plastic refuse containers (NIC).

2-6.6 Locations

UEPH complex on Alpha Block

LCOF pair on Echo Block (south)

MCOF pair on Echo Block (north – FY02 bldgs.)

LCOF pair on Echo Block (north – FY02/04 bldgs.)

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CHAPTER 3

SITE PLANNING AND DESIGN

3-1 SCOPE OF WORK.

3-1.1 Echo Block Build Out

3-1.1.1 The functional requirement for the FY04 Whole Barracks Renewal is to site three Large Company Operations Facilities and two Large Battalion Headquarters with classroom within the existing master plan for Echo Block. The master plan projects that the final build out of Echo Block will consist of 3 barracks complexes to accommodate 800 soldiers and 3 Soldier Community Buildings, 4 medium duplex Company Operations Facilities, 4 large duplex Company Operations Facilities and 4 Large Battalion Headquarters with classroom and a Brigade Headquarters.

3.1.1.2 Parking for soldiers and other administrative personnel shall be located for each building in close proximity to the associated building. Force protection requirements restrict parking within 10 and 25 meters depending on classification of building (see Force Protection paragraph). Accessible parking spaces near building entrance are required.

3.1.1.3 Limited upgrade to the street network is required under the FY04 Whole Barracks Renewal. The FY02 Whole Barracks Renewal upgrades the existing street network and continues the design set forth in the recently completed barracks project at North Fort. The Echo Block complex incorporates a pedestrian friendly design, encouraging walking between the barracks and administrative buildings and this theme is maintained in the FY04 Whole Barracks Renewal. A lawnmower storage building is required at the pair of large company headquarters buildings on the south side of the site, and at each pair of medium company headquarters and large company headquarters on the north side of the site. See Site Plans, Plates C102 and C103.

3.1.2 ALPHA BLOCK FY04 PROJECT.

The portions of FY04 project that are to be developed on Alpha Block are a 300-person barracks, the associated parking, a lawnmower storage building, a half basketball court and sand volleyball court, and road access along C Street into the barracks parking area, and a landmark feature. Parking shall be provided for 80% of barracks occupants. In addition, the area between "C" Street and "D" Street and 41st Division Drive and 12th Street shall be developed as an informal recreation area with a fitness par course and running trail. A sidewalk shall be provided along the west side of 41st Division Drive. The remainder of Alpha Block development will occur in subsequent years as FY05 and FY06 build out. Imaginative site design is encouraged. However, the site boundaries and project composition are fixed. Based on the graphic and narrative descriptions of site opportunities and constraints provided, the offeror shall verify that the site meets the program requirements. See Site Plans, Plates C107 and C108.

3-2 **SITE VERIFICATION.** Graphic and narrative descriptions of site opportunities and constraints have been provided. See Site Plans, Plates C107 and C108.

3-3 **EXISTING CONDITIONS.** The offeror shall be provided with a digital topographic survey for this site by the Government. It is the offeror's responsibility to verify the Government-furnished survey and obtain all additional survey information that may be required for a completed design and construction project. Any discrepancies that are found in the Government furnished survey shall be brought to the immediate attention of the Contracting Officer for clarification.

3-3.1 **Utility Plans.** Plans of the existing utility distribution systems are shown on Plates C104 and C109. The locations of existing utilities shown on the site survey and utility maps are approximate only. The offeror shall field verify utility locations before starting construction. Immediately contact the Contracting Officer if actual conditions vary from the topographic survey.

3-4 **EXCAVATION PERMITS.** The Contractor shall obtain approved installation excavation permits from Public Works prior to digging. Request for excavation permits shall be in accordance with installation policies.

3-5 **SITE DEVELOPMENT PLAN.** Provide a site development plan that shows the spatial and functional arrangement of all Unaccompanied Enlisted Personnel Housing (UEPH) Units, Company Operations Facilities (COF) and Battalion Headquarters Facilities requirements, and landmark feature. The plan should ensure an economical, compatible and functional land use development that utilizes the advantages of the site, fosters visual order, "and provides a sense of community" when constructing UEPH Units. The site development plan shows consideration for the site opportunities and constraints, program requirements, and specific site design criteria and guidance provided.

3-5.1 **Land Use.** The plan for the area should reflect an optimum balance of floor area, open space, and pedestrian and vehicular circulation. The plan should show an efficient, organized and economical land use arrangement that is compatible and functional. This plan should show the relationship of the area to adjacent land uses. See Fort Lewis Real Property Master Plan.

3-5.2 **Buffer Area.** Provide appropriate buffer areas to separate and visually isolate the Unaccompanied Enlisted Personnel Housing (UEPH) Units, Company Operations Facilities (COF) and Battalion and Brigade Headquarters Facilities. Parking Lots shall provide buffers between UEPH and administration buildings. Landscaping and undeveloped areas shall provide buffers along "A" Street and between "C" and "D" Streets.

3-5.3 **Orientation of Company Operations Facilities (COF).** Orient the Company Operations Facilities (COF) within the constraints of the site available to facilitate pedestrian traffic within the complex. Orientation shall be similar to adjacent buildings.

3-5.4 **Orientation of Battalion Headquarters Facilities.** Orient the Battalion Headquarters Facilities to the maximum extent possible within the constraints of the site available to facilitate pedestrian traffic within the complex. Orientation shall be similar to adjacent buildings.

3-6 **GRADING AND DRAINAGE.** The grading should maintain existing topography while recognizing standard gradients. There should be a balance of the quantity of cut and fill soils which would create a smooth transition of graded areas into the existing natural site. The plan should reflect selective site clearing that preserves groups of trees. Grading should

manage site runoff to maintain rate of flow and quantity to pre-construction levels, or reduce site runoff where possible. The principles of positive drainage should be applied to control the conditions that remove rainfall away from facilities and functions. Site designs should seek to minimize the disturbance of land, and utilize natural drainage paths where possible. Federal, State and local regulations regarding the design of stormwater management systems shall be considered the minimum design criteria. Additionally, minimize the impact of construction activities on drainage and prevent loss of soils by water and wind erosion. Designs that improve on existing water quality by incorporating sustainable design principles are encouraged, consistent with budget constraints and activity requirements. The Contractor shall confine all work, except utility upgrades, to the project boundaries indicated on the attached drawings. Provide drainage away from all buildings on all sides with a minimum slope of 2 percent for 3 meters (m). The maximum grade in unpaved areas shall not exceed 5 percent where possible. Drainage system shall be properly coordinated with surrounding properties to insure that runoff does not cause damage to other properties. Surface drainage shall flow away from each building and no collection swales shall be closer than 6 m to any building. Ensure that foundation planting beds are designed to positively drain so that water will not pond next to the foundation.

3-7 GENERAL SITE DESIGN CRITERIA. The following are to be used as guidance for site design. Minimum spacing between buildings shall be 10m. Analyze the existing site conditions (i.e.; land use, community facilities, off-site workplaces, etc.) and incorporate a site design that results in an aesthetically pleasing and functional design. The site design shall address the following: orientation, site organization, spatial balance, character and scale, compatibility, life safety, circulation systems, view of the site, buffer zones, wind and noise control, land forms (i.e.; mounds, swales, ponds, etc.), lawns and shaded areas, vehicular access, a minimum of parking spaces for staff, residents, handicapped, visitors, service, and motorcycles, service entrances, bus routes, connecting walks, utility corridors, fire protection access, site lighting, site furnishings, mechanical enclosures, trash collection dumpsters with trash enclosures, landscaping, etc. The site shall be accessible to physically disabled persons the design shall conform to the Uniform Federal Accessibility Standards (UFAS) Federal Standard 795, and the Americans With Disabilities Act Accessibility Guidelines (ADAAG).

3-7.1 Site Design Criteria For UEPH Facilities. In addition to the general site design criteria defined above, UEPH Facilities shall include the following: two sports courts at the barracks complex and an open space/recreation area.

3-7.1.a Sports Courts. A half basketball court and a sand volleyball court shall be placed on the barracks site in locations that allow good access from the FY04 barracks complex as well as future barracks complexes planned to the north and south of the FY04 barracks. Sports court locations shall consider potential noise impacts to barracks occupants.

3-7.1.b Open Space/Recreation Area. The Offeror shall develop the area located between "C" and "D" Streets and 41st Division Drive and 12th as an informal open space/recreation area with a fitness par course and running path. Existing trees and shrubs shall be retained whenever possible. This area shall require minimal maintenance and no permanent irrigation system shall be used. Gravel, concrete and other building materials remaining from previous development shall be removed and replaced with topsoil as needed to restore area with low maintenance field grasses. Recreation features shall include benches, exercise equipment stations

(par course), and two 1.8m wide asphalt concrete running paths. The running paths shall meander through the area, generally running parallel to "C" and "D" Streets. Both ends of the paths shall extend to sidewalks located along 12th Street and 41st Division Drive for connection to paths planned in future projects.

3-7.2 Landmark Feature. The FY04 project includes a significant landmark feature welcoming all to North Fort Lewis. The landmark feature shall be a gateway or entry structure that is located south of the intersection of 41st Division Drive and 'A' Street, on each side of 41st Division Drive see Plate C108. The gateway shall be a focal point to North Fort and be one of the first features people see as they enter the North Fort area. It will serve as a symbolic entry into North Fort but will not function as a working gate. The materials, colors, style, and scale of the feature shall be compatible with the Whole Barracks architectural theme. Accent lights shall be provided to highlight the feature. If the gateway is designed to span or arch over the road, the minimum vehicle clearance height shall be 4.9 m. The landmark feature shall not be designed as a memorial.

3-8 **CIRCULATION AND PARKING.** The vehicular and pedestrian circulation system shall promote safe, efficient movement of vehicles and pedestrians within the site area. Site design shall facilitate pedestrian traffic between facilities, and minimize the need for vehicular traffic within the complex. Vehicular traffic shall be routed around the outer perimeter of UEPH facility areas to the greatest extent possible. The vehicular and pedestrian circulation system should maintain the maximum separation of vehicles and pedestrians. Safe circulation systems have a clear hierarchy of movement, lead to a clear destination, and do not interrupt other functions. The following criteria shall be considered for designing streets and drives for vehicles and pedestrians:

a. TM 5-822-2 General Provisions and Geometric Designs for Roads, Streets, Walks and Open Storage Areas, July 1987.

b. Installation Design Guide, Fort Lewis, Washington, April 1987.

3-8.1 **Vehicular Circulation.** Vehicular circulation layout is determined by applying the design vehicle templates to the site design. The passenger car class includes passenger cars and light delivery trucks, such as vans and pick-ups. The passenger car template is equivalent to the non-organizational - privately owned vehicle (POV). The truck class template includes single-unit trucks, recreation vehicles, buses, truck tractor-semitrailer combinations, and trucks or truck tractors with semi-trailers in combination with full trailers. Templates showing the turning movements for design vehicles are provided by the American Association of State Highway and Transportation Officials (AASHTO). Obtain templates and utilize them during the design of the facility. Provide the vehicle clearances that are required to meet traffic safety for emergency vehicles, service vehicles, and moving vans. Site entrances and site drive aisles shall include required traffic control signage. Maximize spacing between drives, incorporate right-angle turns, and limit the points of conflicts between traffic.

3-9 **DEFINITIONS.**

3-9.1 **Entrance and Intersection Design.** For site entrances and drive aisle intersections, provide "T" intersection offsets of at least 38.1 m. The preferred angle of intersection is right-angle (90 degrees).

3-9.2 Drive Aisle Design. The selected design vehicle templates determine dimensions for drive aisles for parking lots. Separation, corner clearances, and sight distance are established when the design vehicle templates and speed limits are selected. Design pavements for the wheel load associated with the design vehicle.

3-9.3 Privately Owned Vehicle (POV) Parking. POV stalls without vehicle overhang shall be a 2.7 m x 5.5 m. The design vehicle template that is used to design this space shall be described.

3-9.4 Pedestrian Circulation. Pedestrian circulation should be safe and separate from vehicle circulation. Provide good sidewalk layout to connect all building entrances with parking and site facilities and existing walks. Pedestrian circulation should be based on pedestrian desired lines of walking between site facilities and existing walks. Desired lines should be weighted to predict the most traveled routes. These routes would require paving. Topography and vegetation can be used to reinforce a sense of movement. Design pedestrian concentration areas with adequate paved area. Sidewalk setback on "C" Street shall be 1.2 m. Sidewalk setback on 41st Division Drive and 12th Street shall be 4.6 m.

3-10 SIDEWALK DESIGN. The network of walks throughout the complex shall be designed to facilitate pedestrian traffic among facilities, and minimize the need to use vehicles. Sidewalks shall be provided on both sides of 12th street. Sidewalks shall be provided on the south side of "C" Street and the west side of 41st Division Drive. Walks shall be a minimum of 1.2 m wide exclusive of curb width, and made non-reinforced concrete with a minimum thickness of 100 mm. The sidewalk on 'C' Street shall be 1.2 m wide. Where walks are adjacent to the curb, the curb width is not to be included as sidewalk. Ramps for handicapped individuals shall be provided at intersections by depressing street curbs and adjacent sidewalk.

3-11 LANDSCAPE PLAN.

3-11.1 General. The offeror shall obtain and use the services of a registered landscape architect, experienced in site planning and planting design. A complete, integrated landscape-planting plan shall be provided for the overall project. Provide an energy-conscious, maintenance-efficient, self-sustaining and aesthetically pleasing landscape design.

Landscaping shall be in accordance with force protection criteria (in particular Standard 3. Unobstructed Space) and Sustainable Design Goals. Force protection criteria do not prohibit the use of vegetation within the 10m unobstructed zone. However, vegetation shall not permit the obstruction of objects 150 mm or greater in height. Previous WBR projects have primarily used low groundcovers, turf, and inorganic mulches (such as river rock) within 10 meters of buildings. Sparsely limbed or upright deciduous shrubs that do not allow the obstruction of objects 150 mm or greater in height can be used to a limited extent. Individual deciduous trees are allowed within the 10-meter zone but shall be located far enough apart from adjacent trees so that there is good visibility around trunks.

Plants: Plant materials shall be selected on the basis of plant hardiness (drought tolerance), climate, soil conditions, and quality. Plant materials shall be low maintenance and tolerant of the specific site conditions. A plant list of prohibited plants and acceptable plants is provided in Attachment 14. The Contracting Officer shall approve plants other than those on the acceptable list. They shall meet sustainable design goals and force protection criteria. The

use of native vegetation is encouraged. Fast growing ground covers and mulch shall be used to minimize weeding requirements and maintain soil moisture during establishment. Planting, sodding, or seeding shall occur only during periods when beneficial results can be obtained. Topsoil shall be applied at a minimum depth of 150 mm for turf and 200 mm for planting areas other than turf. Areas that are disturbed by construction activities that are not part of the designed landscape(all areas outside paved, rock-mulched, planted or developed areas of the project) shall receive a minimum depth of 100 mm of topsoil and be seeded to a low-maintenance, field grass mix to control erosion.

3-11.2 **Landscape Design Goals**

3-11.2.1 **Echo Block.** See Plate L101 General Landscape Concepts for examples of the type of landscape designed for previous years (WBR FY02 and FY03). This drawing is provided for illustration only. Offeror is free to propose other designs, however, landscapes of this type used on Echo block shall be consistent with, and complementary to, landscapes constructed as part of the WBR FY 02 and FY 03 programs.

- a) Patio or courtyards areas shall be provided adjacent to each administrative buildings for small gatherings.
- b) Special paving surfaces shall be provided in the higher intensity areas such as the Company Operations Facility COF and Battalion Headquarters Facility patios and front entrances. Special paving materials shall include concrete patterning/texturing. Consider the use of other landscape material such as concrete pavers, rock mulches, and large landscape rocks in the design.
- c) Provide adequate outdoor seating at each (COF) and Battalion Headquarters Facility, see goal (j).
- d) Enhance site security throughout the site by considering how planting affects visibility and lighting design.
- e) Maintain 4.6-meter setback for all new and existing trees from underground utility lines, whenever possible. Setbacks shall be a minimum of 3.1 m for new trees. Landscaping shall be fully coordinated with existing and proposed utilities.
- f) When possible, co-locate aboveground utility boxes within planting areas to minimize visual clutter. For areas outside the force protection 10-meter unobstructed zone, screen aboveground utilities boxes (with the exception of transformers) with vegetation when possible. Transformers shall have a minimum clear zone (no trees, shrubs or ground covers) of 2.4 m for maintenance access.
- g) Limit lawn areas to those required for functional open space to reduce water required for irrigation.
- h) Maintain existing trees whenever possible if determined to be of good health and location in relation to roads, parking, and buildings. Protect existing trees to be retained from damage during construction. See paragraph 4-4 Clearing and Grubbing and Section 00890, 02230 Clearing and Grubbing specification.
- i) A cast-in-place concrete mow edge shall be provided between lawns and plant beds, and between building perimeters and lawns.

j) All site furnishings shall be well integrated into the site and landscape design and shall be compatible with the architectural design of the COF and Battalion Headquarters Facilities. Site furnishings shall include benches [four (4) minimum per building], and trash/ash receptacles (1 minimum per building). At minimum, the LEED point for bike racks (Credit 4.2: Alternative Transportation, Bicycle Storage & Changing Rooms) shall be attained. Site furnishings shall comply with force protection criteria.

k) Large-growing deciduous shade trees shall be provided for parking lots (around perimeter and in islands). At minimum, parking lot islands with trees shall be provided for every ten (10) to twelve (12) parking spaces. Parking lot islands and perimeter planting areas shall be a minimum of 3.1 m wide and a preferred size of 4.6 m wide.

l) Signs and guidons shall be provided for COF and Battalion Headquarters Facilities . For signs see 00890 and detail A701 in Attachment 7. Two signs shall be provided for each (COF--one for each company), and one sign shall be provided for each Battalion Headquarters Facilities. For COF guidon detail, see Plate C111. A total of six guidons shall be provided: two for each COF (one per company). Guidons shall be located near the main building entrance. See Plate L101 for COF guidon and sign locations. The Battalion Headquarters Facilities signs shall be prominently located on each building site near the main entry sidewalk leading from the building to the parking lot.

m) The landscape design shall be water efficient. At minimum, a LEED point for Credit 1.1: "Water Efficient landscaping, Reduce by 50%," shall be achieved.

3-11.2.2 Alpha Block. See Plate L101 for an example of the type of barracks complex landscape designs used on WBR Echo Block in FY02 and FY03.. This plan provides a very general guideline for the type of landscape requested for this project: the following goals are required.

a) Develop a "soldier friendly" environment that is distinct from the everyday working environment.

b) Courtyards or central landscaped areas in the barracks complex that allow privacy and passive (relaxing) recreation areas as well as areas for group social activities such as picnicking and troop barbecues shall be provided.

c) Special paving surfaces shall be provided in the higher intensity areas such as building patios and front entrances. Consider the use of other landscape material such as, pavers, rock mulches, and large landscape rocks in the design.

d) Areas within the Unaccompanied Enlisted Personnel Housing (UEPH) complex that allow open play/passive recreation (Frisbee, catch) shall be provided. A half basketball/sport court and sand volleyball court shall be provided, see 3-7.1. An open space/recreation area shall be provided for the block between "C" and "D" Streets and 41st Division Drive and 12th Street, see 3-7.1.

e) Provide adequate outdoor seating along walks, in courtyards, and near recreation facilities. Consider weather protection (shelter, shade trees).

- f) Enhance site security throughout the site by considering how planting affects visibility and lighting design.
- g) Boulevard (street tree) planting shall be provided along all streets within a 4.6 meter-wide planting area (setback) between the road (as measured from face of curb) and sidewalk as shown on Plate L101, C107 and C108. Street trees shall be planted 10.6 m to 13.7 m on center (o.c.). An exception to the 4.6 m plant area and street tree planting is the area located on 'C' Street, between 12th Street and 41st Division Drive (see Plate C107). This area contains a row of existing Ponderosa pine and Douglas-fir trees that shall be preserved. The 1.2 meter-wide sidewalk shall be moved closer to 'C' Street to preserve these trees and provide safe pedestrian access (a 1.2 m setback from street instead of standard 4.6 m). These trees shall be fenced along the project boundary line during construction with a 1.8 meter-high portable chain-link fence as shown on Plate C107. No construction activities shall be allowed other than minimal grading that is required for sidewalk grades to meet with existing grade. If cutting or filling of 125 mm or greater is required within 4.6 meters of tree trunks to meet sidewalk grades, low concrete curbs/walls shall be used to maintain existing tree grades within this area.
- h) Maintain 4.6-meter setback for all new and existing trees from underground utility lines, whenever possible. Setbacks shall be a minimum of 3.1 m for new trees. Landscaping shall be fully coordinated with existing and proposed utilities.
- i) When possible, co-locate aboveground utility boxes within planting areas to minimize visual clutter. For areas outside the 10-meter unobstructed zone, screen aboveground utilities boxes (with the exception of transformers) with vegetation when possible. Transformers shall have a minimum clear zone (no trees, shrubs or ground covers) of 2.4 m for maintenance access.
- j) Limit lawn areas to those required for recreation and functional open space to reduce water required for irrigation.
- k) Large-growing deciduous shade trees shall be provided for parking lots (around perimeter and in islands). At minimum, parking lot islands with trees shall be provided for every ten (10) to twelve (12) parking spaces. Parking lot islands and perimeter planting areas shall be a minimum of 3.1 m wide and a preferred size of 4.6 m wide. Maintain existing trees whenever possible if determined to be of good health and location in relation to roads, parking, and buildings. Protect existing trees to be retained from damage during construction.
- m) A cast-in-place concrete mow edge shall be provided between lawns and plant beds, and between building perimeters and lawns.
- n) All site furnishings shall be well integrated into the site and landscape design and shall be compatible with the architectural design of the barracks buildings. Site furnishings for the barracks complex shall include benches [ten (10) minimum], trash/ash receptacles [four (4) minimum], picnic tables [eight (8) minimum including two (2) covered universally accessible tables], and outdoor barbeque grills [two (2) minimum with a minimum of two (2) that are universally accessible] per building. At minimum, a LEED point for bike racks (Credit 4.2: Alternative Transportation, Bicycle Storage & Changing Rooms) shall be achieved. Site furnishings shall comply with force protection criteria. Incorporate trellises, arbors or other landscape structures or features when possible to enhance the quality of life for soldiers.

- o) The landscape design shall be water efficient. At minimum, a LEED point for Credit 1.1: "Water Efficient landscaping, Reduce by 50%," shall be achieved.

3-11.3 Trees, Shrubs, and Ground Cover. Plant varieties shall be nursery grown or plantation grown stock. They shall be grown under climatic conditions similar to those in the locality of the project.

3-11.3.1 Quality. Well-shaped, well-grown, vigorous, healthy plants having healthy and well-branched root systems in accordance with ANLA Z60.1 shall be provided. Plants shall be free from disease, harmful insects and insect eggs, sunscald injury, disfigurement, and abrasion. Plants shall be provided that are typical of the species or variety.

3-11.3.2 Measurement. Plant measurements shall be in accordance with ANLA Z60.1.

3-11.3.3 Percolation Test. Test for percolation shall be done to determine positive drainage of plant pits and beds. A positive percolation shall consist of a minimum **25 mm** per 3 hours; when a negative percolation test occurs, a shop drawing shall be submitted indicating the corrective measures.

3-11.3.4 Soil Test. A soil test shall be performed for delivered topsoil for particle size, pH, organic matter content, textural class, chemical analysis, soluble salts analysis, and mechanical analysis to establish the quantities and type of soil amendments required to meet local growing conditions for the type and variety of plant material specified. See 00890 for topsoil requirements. Soil tests shall be certified reports of inspections and laboratory tests, prepared by an independent testing agency, including analysis and interpretation of test results. Each report shall be properly identified. Test methods used and compliance with recognized test standards shall be described. The soil test shall be submitted to the Contracting Officer for approval. A soil test shall be required for every topsoil source (manufacturer).

3-11.3.5 Installation. Verify the location of underground utilities. When obstructions below ground or poor drainage affect the planting operation, proposed adjustments to plant location, type of plant, and planting method or drainage correction shall be submitted. The plant material shall be installed during appropriate planting times and conditions recommended by the trade for the type and variety of plant material specified. Plant pits shall be excavated and backfilled as recommended by current industry standards. The planting operation shall be performed only during periods when beneficial results can be obtained. When special conditions warrant a variance to the planting operations, proposed planting times should be submitted. Organic mulch shall be provided for plants after installation.

3-11.3.6 Pruning. Pruning shall be accomplished by trained and experienced personnel. Tree pruning shall be in accordance with ANSI A300. Only dead, diseased, or broken material shall be pruned from installed trees. The typical growth habit of individual plants shall be retained. Trees shall not be poled or the leader removed, nor shall the leader be pruned or "topped off." Existing trees to retain shall be pruned according to 00860, 4-4 Clearing and Grubbing.

3-11.3.7 Maintenance During Planting Operation. Installed plants shall be maintained in a healthy growing condition. Maintenance operations shall begin immediately after each plant is installed and shall continue until the plant establishment period commences.

3-11.3.8 Plant Establishment Period. On completion of the last day of the planting, seeding and sodding operation, the plant establishment period for maintaining installed plants in a healthy growing condition shall commence and shall be in effect for the remaining contract time period not to exceed 12 months. When the planting operation extends over more than one season or there is a variance to the planting times, the plant establishment periods shall be established for the work completed.

3-11.3.9 Maintenance During Establishment Period. The maintenance of plants shall include straightening plants, tightening stakes and guying material (if staking is required, see 00890), protecting plant areas from erosion, maintaining erosion material, supplementing mulch, removing dead or broken tip growth by pruning, maintaining edging of beds, checking for girdling of plants and maintaining plant labels, watering, weeding, removing and replacing unhealthy plants. When application of a pesticide becomes necessary to remove a pest or disease, a pesticide treatment plan shall be coordinated with the Installation Pest Management Coordinator.

3-11.3.10 Unhealthy Plant. A tree shall be considered unhealthy or dead when the main leader has died back, or up to a maximum 25 percent of the crown has died. A shrub or groundcover shall be considered unhealthy or dead when over 25 percent of the plant has died. This condition shall be determined by scraping on a branch an area 2 mm square, maximum, to determine if there is a green cambium layer below the bark. Unhealthy or dead plants shall be removed immediately and shall be replaced in accordance with the following warranty paragraph. The Contractor shall determine the cause for unhealthy plant material and shall replace the plant in-kind as soon as seasonal conditions permit and with the same size as the plant being replaced or provide alternative recommendations for replacement (substitutions to be approved by Contracting Officer).

3-11.3.11 Warranty. Furnished plant material shall be guaranteed to be in a vigorous growing condition for a period of 12 months regardless of the contract time period. A plant shall be replaced one time under this guarantee.

3.11.4 Turf. Turf consists of seed and sod.

3.11.4.1 Seed. State-certified seed of the latest season's crop shall be provided in the original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS seed laws and applicable State seed laws. Seed mixtures shall be proportioned by weight. Weed seed shall not exceed one percent by weight of the total mixture.

3-11.4.2 Sod. State approved sod shall be provided as classified by applicable State laws. Each individual sod section shall be of a size to permit rolling and lifting without breaking. The sod shall be relatively free of thatch, diseases, nematodes, soil-borne insects, weeds or undesirable plants, stones larger than 25 mm in any dimension, woody plant roots, and other material detrimental to a healthy stand of turf. Sod that has become dry, moldy, or yellow from heating, or has irregular shaped pieces of sod and torn or uneven ends shall be rejected. Sod shall be machine cut to a uniform thickness of 32 mm within a tolerance of 6

mm excluding top growth and thatch. Measurement for thickness shall exclude top growth and thatch. The limitation of time between harvesting and installing sod shall be a maximum of 36 hours.

3-11.4.3 Soil Test. A soil test shall be performed for delivered topsoil for particle size, pH, organic matter content, textural class, chemical analysis, soluble salts analysis, and mechanical analysis to establish the quantities and type of soil amendments required to meet local growing conditions for the type and variety of turf specified. See 00890 for topsoil requirements. Soil tests shall be certified reports of inspections and laboratory tests, prepared by an independent testing agency, including analysis and interpretation of test results. Each report shall be properly identified. Test methods used and compliance with recognized test standards shall be described. The soil test shall be submitted to the Contracting Officer for approval. A soil test shall be required for every topsoil source (manufacturer).

3-11.4.4 Temporary Turf Cover. When there are contract delays in the turfing operation or a quick cover is required to prevent erosion, the areas designated for turf shall be seeded with a temporary grass seed. When no other turfing materials have been applied, the quantity of one-half of the required soil amendments shall be applied and the area tilled.

3-11.4.5 Final Turf. The turf shall be installed during appropriate planting times and conditions recommended by the trade for the type and variety of turf specified. The turf operations shall be performed only during periods when beneficial results can be obtained. Drainage patterns shall be maintained. The turf shall be installed by using the methods as recommended by the trade for the type and variety of turf specified. Immediately after turfing, the area shall be protected against traffic or other use by erecting barricades and providing signage as required. The turf establishment period for establishing a healthy stand of turf shall begin on the first day of work under the turfing contract and shall end three months after the last day of the turfing operation. An unsatisfactory stand of turf shall be repaired as soon as turfing conditions permit.

3-11.4.7 Maintenance During Establishment Period. The maintenance of the turf areas shall include eradicating weeds, eradicating insects and diseases, protecting embankments and ditches from erosion, maintaining erosion control materials and mulch, protecting turf areas from traffic, mowing, watering, post-fertilization, and replacing unsatisfactory turf areas. When application of a pesticide becomes necessary to remove a pest or disease, a pesticide treatment plan shall be coordinated with the Installation Pest Management Coordinator.

3-12 SPRINKLER /IRRIGATION SYSTEM.

This scope of work includes two sites. The first site is Echo Block which has buildings either existing or still under construction. The second site is Alpha Block which is a totally new construction site.

Irrigation shall be required for all landscape areas. The following requirements apply to both blocks:

- 1) All permanent systems shall be a commercial-grade automatic irrigation system with controls covering all lawn and planting areas.
- 2) Design the system to function with available water pressure. Investigate and employ methods of irrigation based on sustainable design principles, where practical and feasible.

- 3) Irrigation designs will be stamped by a Registered Landscape Architect or Certified Irrigation Designer.

Echo Block

This block will receive a 100% permanent, complete and operational irrigation system covering all landscape areas with head to head coverage. This site consists of four remaining regions to be irrigated. Three of the regions "I", "M", and "N" will require tying into an existing irrigation system consisting of a 25mm point of connection, 50mm or 64mm mainline, and controller. The mainlines and wire have been stubbed out beyond the existing landscape so trenching thru the existing landscaping is not required. The remaining region "L" will require a new 25mm point of connection and controller.

Region "I" is a Large Company HQ located NE of the only Large Company HQ constructed under FY02. This controller is sized to accommodate the expansion of FY04. One common, one spare, and 10 hot wires have been extended into the FY04 area.

Region "M" is a Battalion located NE of the only Medium Battalion HQ constructed under FY02. This controller is sized to accommodate the expansion of FY04. One common, one spare, and 12 hot wires have been extended into the FY04 area.

Region "N" is a Battalion located NE of the only Large Battalion HQ constructed under FY03. This controller is sized to accommodate the expansion of FY04. A minimum of one common, one spare, and 12 hot wires have been extended into the FY04 area.

Region "L" is located between the Medium Company Facility and Large Battalion HQ constructed under FY03. This region consists of two Large Company Facilities and requires a 100% complete irrigation system to be installed. There are no provisions existing from previous contracts. Connection to an existing system shall not be allowed.

See Plate L 102 for specific irrigation regions.

Alpha Block

Alpha Block will receive a 300-man barracks. This site (the same as for Echo Block region "L") will require a 100% complete irrigation system as this is the first construction on this site.

The contractor shall determine how the irrigation system is to be fed with water. This system can use only potable water, non-potable water, or a combination of both. If non-potable water is used, the irrigation contractor will be required to use products specific to non-potable uses. If potable water is used, all new services shall be metered. Tap into domestic water line and install setter, meter, and concrete meter box.

The Alpha Block irrigation system shall be designed to receive a 100% permanent, complete and operational irrigation system in all landscaped areas.

3-13 SITE FURNITURE: Site furniture shall be permanently installed, low maintenance, with durable materials and finishes (no concrete or pre-cast concrete shall be used) and shall be in compliance with force protection criteria. Site furniture colors, finishes and styles shall be well coordinated with each other and with buildings to create a cohesive visual character.

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Finish colors for Echo Block site furniture shall be bronze, brown and/or black and shall be as similar as possible to WBR FY02 and FY03 Echo Block furniture colors.

CHAPTER 4

SITE ENGINEERING

4-1 SOILS.

4-1.1 Geotechnical Report. A Geotechnical Report is provided as part of this RFP (See Attachment 8). The report provides an overview of subsurface conditions, general recommendations for design, and is furnished for informational purposes. The offeror to whom this contract is awarded, shall perform a geotechnical investigation specific to the proposed project to provide any additional geotechnical information that is not contained in the furnished Geotechnical Report to be used for design. The Contractor shall submit a project specific geotechnical report, certified by a professional engineer experienced in geotechnical engineering, to include, but not limited to: description and classification of geologic, soil, rock, and groundwater conditions; subsurface profiles, boring logs and location plans; summary of laboratory and field test results; local seismic conditions; local soil, rock, and groundwater problems; extent of boulders; soil resistivity, moisture, and chemistry for cathodic protection; infiltration and permeability conditions; surface and subsurface drainage conditions; description of existing foundation systems; bearing capacity of soil; settlement type and potential; recommendations for type and depth of foundation systems, pavement sections, slab on grade sections; recommendations for foundation drainage systems; general earthwork, compaction, dewatering, erosion and sediment control, excavation and safety requirements; recommendations for field tests or any other information necessary for design.

4-1.1.1 Certification. The offeror and his or her professional geotechnical engineer consultant shall certify in writing that the design of the project has been developed consistent with the site specific geotechnical conditions. The certification shall be stamped by the consulting professional geotechnical engineer and shall be submitted with the First Site/Utility Design Submittal (65%) . If revisions are made to the design submission, a new certification shall be provided with the next design submission.

4-1.1.2 Changed Conditions. As noted in paragraph 4-1.1.1, the geotechnical report in the RFP is for informational purposes and the offeror awarded the contract is responsible for conducting his or her own project specific geotechnical investigation and report. If the Contractor encounters conditions different than provided in the RFP, the Contractor shall notify the Government with the submission of the Contractor project specific geotechnical report differences that can impact cost such as rock or groundwater elevations; discovery of soil, rock, and groundwater problems; discovery of contamination; changes required for foundations or pavements; changes in earthwork requirements; etc. The Government shall evaluate the notification to determine if a Changed Condition exists prior to the approval to initiate construction.

4-1.2 Soil Compaction. Soil compaction shall be achieved by equipment approved by a professional geotechnical engineer. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the compaction specified with the equipment used. Compact each layer to not less than the percentage of maximum density specified in Table 4-1, determined in accordance with ASTM D 1557, Method D.

TABLE 4-1 Soil Compaction

Subgrade Preparation, Fills, Embankments, and Backfills	Compaction Requirements (Percentage of Maximum Density)
Structures & Building Slabs	95
Streets, Paved Areas, Bike Paths	95
Sidewalks	90
Grassed and Planted Areas	85

The requirements shall be verified or modifications recommended by the consulting professional geotechnical engineer in the report wherever engineering, soils, or climatic factors indicate the necessity. Any modification to the stated compaction requirements shall require the approval of the Contracting Officer.

4-1.3 Capillary Water Barrier. A capillary water barrier is required for all interior slabs on grade, including garages, carports and storage rooms. As a minimum, the capillary water barrier shall consist of clean, crushed, nonporous rock, crushed gravel, or uncrushed gravel. The maximum particle size shall be 37.5 mm and no more than 2 percent by weight shall pass the 4.75 mm size sieve.

4-1.4 Radon Mitigation. The design and construction of foundation walls, slabs, and crawl spaces shall include provisions for the reduction of radon entry and facilitate its removal. Radon mitigation shall comply with the requirements of ASTM E1465.

4-2 EROSION AND SEDIMENT CONTROL. Erosion and Sediment Control Facilities shall be required in accordance with Fort Lewis Design Standards and as described in Specification Section 01410: Environmental Protection. The management of erosion and sedimentation from construction sites and new developments involves the design and implementation of a control system. Design a sediment and erosion control plan, specific to the site, that conforms to United States Environmental Protection Agency (EPA) Document No. EPA 832/R92-0005 (September 1992), Storm Water Management for Construction Activities, Chapter 3 OR local erosion and sedimentation control standards and codes, whichever is more stringent. The plan shall meet the following objectives:

- Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams.
- Prevent polluting the air with dust and particulate matter.

4-3 DEMOLITION. Existing pavement scheduled for demolition includes as shown on the plans. Materials not owned by the Government and not used in construction shall be disposed of off Government property. Obtain required demolition permits and disposal permits from Fort Lewis DPW. Obtain approval of the disposal site from the Contracting Officer.

4-4 CLEARING AND GRUBBING. Clear and grub all trees and vegetation necessary for construction; but, save as many healthy trees as possible. Unless otherwise noted, a qualified tree specialist (International Society of Arboriculture (ISA) Certified Arborist, urban forester, or horticulturist) shall determine the health and safety of trees. Trees within the project site limits of work and which are indicated to be left in place, shall be protected by a 1.8 m portable chain-link fence. Existing trees to be preserved shall be crown-pruned to remove all dead, broken, or crossing branches within the crown of the tree. Pruning shall be accomplished by trained and experienced personnel in accordance with ANSI A300. Any existing vegetation designated to remain that is damaged during the work under this contract shall be replaced in kind in accordance with Section 01410 Environmental Protection. See also Section 00890, 02220 Demolition and 02230 Clearing and Grubbing. All timber removed from the project site shall remain the property of the Government, unless otherwise indicated or specified.

4-4.1 Grubbing

Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 450mm below the original surface level of the ground in areas indicated to be grubbed. Tree stumps shall be removed by grinding to a minimum depth of 450mm below original ground surface. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

4-4.2 Tree Removal

Where indicated or directed, trees and stumps that are designated as trees shall be removed from areas outside those areas designated for clearing and grubbing. This work shall include the felling of such trees and the removal of their stumps and roots as specified in paragraph Grubbing. Trees shall be disposed of as specified in paragraph **Disposal of Materials**.

4-4.3 Disposal of Materials

4-4.3.1 Salable Timber

4-4.3.1.1 Salable Timber: Forest products cut on construction sites shall be classified as Sawlogs, Fuelwood, and Trash. Sawlogs and Fuelwood shall be yarded as described below. Trash shall become property of the Contractor.

4-4.3.1.2 Sawlogs are made from trees that are 200mm Diameter Breast Height (DBH) (1350mm above ground level) and larger. Cleanly limb trees flush with tree trunk and top at 150 mm Diameter Inside Bark (DIB). The minimum size for a sawlog is 150mm diameter on the small end and 4.8 meters in length.

4-4.3.1.2.1 If a log cannot be handled in one length, buck one or more 9.6 meters logs, plus standard trim allowance 300mm, from the butt until the remainder of the tree is less than 9.6 meters in length.

4-4.3.1.3 Fuelwood is made from trees small than 200mm DBH, and the tops of trees used for sawlogs. Limb tree, or top, and top at 50 mm DIB. The minimum size for a fuel wood log is 125mm diameter on the large end and 2.4meters in length.

4-4.3.1.4 Trash shall be any forest product not classified as sawlogs or fuelwood.

4-4.3.1.5 Disposition: Yard sawlogs and fuelwood to a local area, as directed by the Contracting Officer, that does not interfere with the construction project and will be accessible at a later date for salvage disposal action. Deck sawlogs and fuelwood separately. All decks, sawlogs, and fuelwood shall be kept free of limbs and other debris. Trash shall be disposed of in accordance with the following paragraph.

4-4.4 Materials Other Than Salable Timber

Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations, except for salable timber, shall be disposed of outside the limits of Government-controlled land at the Contractor's responsibility, except when otherwise directed in writing. Such directive will state the conditions covering the disposal of such products and will also state the areas in which they may be placed.

4-5 **WETLANDS.** Jurisdictional wetlands have not been identified on the project site.

4-6 **EARTHWORK.** The Contractor is responsible for obtaining subsurface soil information for design purposes.

4-7 **BORROW MATERIAL.** Obtain borrow material required for construction from licensed and permitted existing sources off Government property.

4-8 **WATER DISTRIBUTION SYSTEM.** The design of the water distribution system shall be in accordance with the American Waterworks Association (AWWA), TM 5-813-5 Water Supply Water Distribution November, 1986 and Fort Lewis Design Standards. The Contractor shall determine the domestic and the fire demands for the facilities and shall verify the design of all components of the domestic and fire protection supply systems. Design of a water distribution system requires both domestic and fire flow demands be considered concurrently. Sizes shown on drawings are minimum sizes.

4-8.1 **Analysis of Existing System Capacity.** The Contractor shall provide design calculations that show the existing system is capable of handling the additional flows.

4-8.2 **Connections to Water Mains and Building Service Lines.** The Contractor shall be responsible for the design of the sizes, locations, and means of connections to the existing system based on Facility requirements and system conditions. See Utility Plans for connections to the existing systems. In Echo block, the infrastructure for the water distribution system was constructed under the FY02 Whole Barracks Renewal and was installed parallel to the developed street network, 17th Street, 19th Street, 22nd Street, 24th Street, East Drive, A Street and C Street. Water supply lines to the new buildings will be provided. These new lines will connect to the stub-outs provided in the FY02 Whole Barracks Renewal. Existing asbestos cement lines in the project will be abandoned. Abandoned asbestos cement lines will be removed in locations where they would fall under building footprints, or abandoned in place and filled with concrete if below the footing cuts. In Alpha Block, existing waterlines within the project limits will be abandoned and new waterlines installed. Service lines to existing buildings will remain active. Stubouts for future

buildings, which will include two 200-person barracks, shall be provided. All existing waterlines are assumed to be asbestos cement.

4-8.2.1 Connections to Water Mains. Design the connections to the station water system including the meter assemblies and the necessary backflow-preventing devices. Fire protection system shall be considered as that part of the distribution system supplying fire hydrants, or fire hydrant and fire sprinkler system laterals. Service connections supply water from the main to the building. Mains shall be looped with no dead ends and be of adequate size to satisfy both domestic and fire flow requirements. Minimum main size is 150 mm. Sufficient sectional control valves shall be provided so that no more than two fire hydrants will be out of service in the event of a single break in a water main. A copper tracer wire shall be placed directly above all non-metallic mains when plastic marking tape does not provide means of determining alignment of pipe by metal detecting equipment. The pipe, valves, and all other materials shall meet the requirements of the AWWA or Fort Lewis design standards for a 1034 kPa working pressure system.

4-8.2.2 Building Connections. Design and construction shall be in accordance with the International Plumbing Code 2000 or latest edition.

4-8.3 Trenches. Water and gas mains may not be installed in the same trench. Water mains shall have a minimum earth cover of 915 mm. Adequate cover must be provided for freeze protection. Sufficient cover must also be provided to protect the pipe against structural damage due to superimposed surface loads. Lines installed with less cover than the minimums stated shall be concrete encased with a minimum concrete thickness of 150mm.

4-8.4 Fire hydrants. Hydrants and valves shall conform to AWWA and Fort Lewis Design Standards requirements. Fire hydrants shall be compatible with those presently in use at the installation with similar pump and hose connections. The maximum amount of flow that can be permitted shall be determined. Fire hydrant spacing shall be no greater than 150 m apart. In addition, a hydrant shall be provided so that all parts of the facilities can be reached by hose lines not over 105 m long. All distances shall be calculated along the closest route that the fire apparatus must travel (i.e.; along the curb or access lane). Each hydrant may account for a maximum of 95 liters per second of fire protection regardless of existing pressures or water line capacity. A fire hydrant shall be located within 15m from any fire department connection provided. Hydrant laterals shall be 150 mm minimum size, and shall not exceed 15 m in length, and shall have an underground shutoff valve. Valve box, at each lateral, shall be located within 3 m of the hydrant, and shall not be located where obstructed by parked vehicles, shrubbery, etc. Guard post barriers shall be provided where hydrant locations are subject to vehicle damage.

4-8.5 Shutoff Valve. Each building shall be provided with a separate service and main shutoff valve, readily accessible to maintenance and emergency personnel. Shutoff valves in walks are prohibited.

4-8.6 Metering. Meters shall be provided with both local and remote monitoring features. Remote monitoring meters shall be equipped with electronic or radio frequency transmitters for remote monitoring. The method of remote monitoring must be integrated and coordinated with the installation UMCS/EMCS/DDC systems. Water meters shall be located inside of the mechanical room.

4-8.7 Materials. Materials for the water distribution system shall be in accordance with the Fort Lewis design standards. Copper water service lines, if used, will be dielectrically isolated from ferrous pipe. Dielectric isolation shall conform to the requirements of AWWA. For ductile iron piping systems (except for ductile iron piping under floor in soil) conduct an analysis to determine if cathodic protection and/or bonded or unbonded coatings are required. Unbonded coatings shall conform to the requirements of the agency having jurisdiction.

4-8.8 Economic Analysis. Conduct an economic analysis to determine if cathodic protection and protective coatings should be provided for the following structures in soil resistivity conditions above 10,000 Ohm-cm: ferrous metallic potable water lines; Concentric neutral cable; Other buried and submerged ferrous metallic structures not covered above; Ferrous metallic piping passing through concrete shall not be in contact with the concrete.

4-8.9 Field Quality Control for Water Distribution. The Contracting Officer will conduct field inspections and witness field tests specified. The Contractor shall perform field tests, and provide labor, equipment, and incidentals required for testing. Do not begin testing on any section of a pipeline where concrete thrust blocks have been provided until at least 5 days after placing of the concrete. Testing procedures and requirements shall comply with AWWA Standards and Fort Lewis Design Standards.

4-9 SANITARY SEWERAGE SYSTEM. The design of the sanitary sewer distribution system shall be in accordance with the Fort Lewis design standards and TM 5-814-1 Sanitary and Industrial Wastewater Collection – Gravity Sewers and Appurtenances, March 1985. The Contractor shall determine the sewerage contribution for the facilities and shall verify the design of all components of the sanitary sewer system. Existing sanitary sewer mains within Echo Block were replaced under the FY02 Whole Barracks Renewal. Barracks projects at North Fort have placed new sanitary sewer mains beneath the streets. Stub-outs under streets and pavements placed under previous projects will allow easy connection for services to the buildings constructed under the FY04 Whole Barracks Renewal. The route for the new sanitary sewer mains is under 17th Street and 22nd Street from A Street to the connection with the existing mains on D Street. The sanitary sewer mains are relatively shallow and will require that special attention be given to the selection of the buildings' finished floor elevations in order to maintain flow via gravity. Existing sanitary sewer mains in Alpha Block shall be abandoned under the FY04 Whole Barracks Renewal. A new sanitary sewerline shall collect effluent from the barracks complex and two future 200-person barracks, and discharge into an existing manhole at the intersection of 41st Division Drive and D Street.

4-9.1 Analysis of Existing System Capacity. The Contractor shall provide design calculations that show the existing system is capable of handling the additional flows.

4-9.2 Calculate Sewage Contribution. Calculate the sewage contribution from the new facilities in accordance with the TM 5-814-1 Sanitary and Industrial Wastewater Collection – Gravity Services and Appurtenances, March 1985.

4-9.3 Connections to Sewage Collection Mains and Building Service Lines. The Contractor shall be responsible for the design of the sizes, locations, and means of connections to the existing system based on Facility requirements and system conditions. Connect to gravity mains with a manhole.

4-9.3.1 Building Sewer Laterals and Connections. Laterals and building connections shall be designed and constructed in accordance with the International Plumbing Code 2000 or latest edition. Minimum diameter for laterals shall be 150 mm while maintaining a minimum velocity of 45 meters per minute. Contractor shall provide No. 12 insulated tracer wire directly above non-metallic lines and install marking tape.

4-9.3.2 Main Collection Trunks. Pipe sizes and slopes shall be calculated using the Manning Formula. Manholes are required at all changes of direction and spaced not more than 122 m apart. Curved sewers are prohibited. Pipes shall be designed to maintain a minimum velocity of 37 meters per minute for average flow and 45 meters per minute for peak diurnal flow. If siphons are used, two lines of equivalent capacity shall be used with clean-outs.

4-9.4 Trenches. Sewer and water lines, mains or laterals, shall be placed in separate trenches. The separate trenches shall maintain a minimum lateral separation of 3m.

4-9.5 Minimum Sewer and Water Distribution Pipe Separation Requirements. Parallel water and sewer pipe and crossings between water and sewer pipe shall be in accordance with TM 5-814-1, Sanitary and Industrial Wastewater Collection – Gravity Sewers and Appurtenances.

4-9.6 Cover. Sewer lines shall be located at a depth greater than the frost penetration. Coordinate with building connection requirements. To prevent the pipe from being crushed by construction vehicles and the design vehicle, the minimum cover above the top of pipes shall be 915mm unless pipe materials are used and/or unless the pipe is concrete encased with a minimum of 150 mm thickness of concrete.

4-9.7 Sewage Pump Station and Force Main. Pump stations and force mains shall only be used when gravity flow is impossible. If required, pump stations and force mains shall be designed in accordance with TM 5-814-2 Sanitary and Industrial Wastewater Collection – Plumbing Stations and Force Mains, March 1985.

4-9.8 Field Quality Control for Sanitary Sewer Distribution System. The Contracting Officer will conduct field inspections and witness field test specified. The Contractor shall perform field tests, and provide labor, equipment, and incidentals required for testing.

4-10 STORMWATER MANAGEMENT SYSTEMS. The design of the stormwater collection system shall be in accordance with the Stormwater Management Manual for Western Washington. The storm drainage system shall be properly coordinated with surrounding properties to ensure that runoff does not cause damage to other properties. All storm water management calculations shall be based upon a 10-year storm frequency. Design storm water management systems in accordance with the applicable requirements of "Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPS", by the Washington State Department of Ecology or in accordance with the requirements of the Washington State Department of Ecology NPDES permit. The calculation of runoff and the evaluation of existing storm sewer drainage systems shall be as described in paragraph **Storm Drainage Collection Systems and Grading.** Obtain required permits from the Department of Ecology prior to construction. On Echo Block, use of the existing stormwater collection system is allowable. On Alpha Block, 50 percent of the runoff must be retained

onsite. There are numerous methods available for runoff retention or water reuse which include:

1. Runoff from roofs collected in vaults and used to flush toilets.
2. Stormwater from parking areas directed to biofiltration swales.
3. The use of pervious pavement in parking lots.
4. Collection of stormwater in vaults and used for irrigation.
5. Runoff collected from landscaped areas could be directed to onsite infiltration systems.

Stormwater collected from streets shall be collected in catch basins and discharged to the stormwater collection system.

4-10.1 Analysis of Existing System Capacity. The Contractor shall provide design calculations that show the existing system is capable of handling the runoff from the improved site.

4-10.2 Storm Water Retention/Detention System for Volume Control. For volume control, the Contractor shall determine if an on-site storm water retention/detention system is required, based on the capacity of the receiving system. For Alpha Block, 50 percent of runoff shall be retained onsite.

4-10.3 Storm Water Retention/Detention System for Runoff Treatment. For runoff treatment, the Contractor shall determine if an on-site storm water retention/detention is required, based on the GED requirements of the removal of 80 percent of the average annual post development total suspended solids (TSS) and 40 percent of the average post development total phosphorus (TP).

4-11 STORM DRAINAGE COLLECTION SYSTEMS AND GRADING.

4-11.1 Location of Connections to Existing Systems. The Contractor shall select the connection location. Establish the location for the connection based upon economics, design requirements, and downstream capacity. Connect with a manhole or appropriate drainage structure.

4-11.2 Building Connections. Connection to building roof or area drain lines shall be designed and constructed in accordance with the International Building Code 2000 or latest edition. Contractor shall provide No. 12 insulated tracer wire directly above non-metallic lines and install marking tape.

4-11.3 Storm Sewer System. The storm sewer gravity drainage collection system shall be designed and constructed in accordance with the requirements of Fort Lewis base standards. Storm sewer system shall be designed for a minimum of a 10-year return frequency and pipes shall be sized for full flow. The minimum velocity of flow in conduits during a design storm shall be 45 meters per minute. The pipe capacity shall be determined so that the calculated hydraulic grade line of the storm sewer drainage system(s) shall not exceed the curb flow line grade in pavements and the finished site grades.

4-11.4 Manholes. Manholes shall be located at intersections and changes in alignment or grade. Intermediate manhole maximum spacing shall be 75 m for pipes 900mm or less in diameter or box drains with the smallest dimension less than 900 mm. Maximum spacing for intermediate manholes on larger pipes and drain boxes shall be 150 M. Manholes and manhole appurtenances shall be pre-cast concrete and shall conform to the Fort Lewis design standards. Shape manhole inverts to the shape of the pipe with cast in place concrete after installing pipes. The manhole lid shall have a 600mm minimum opening as measured from the face of the wall or ladder where applicable.

4-11.5 Drainage of Grass Areas. Except at personnel and overhead doors, the difference in grade between the finish floor elevation and the surface of the ground immediately adjacent to the building shall be a minimum of 150 mm. Minimum slopes across grass surfaces shall be one percent. In grass areas, overland sheet flow shall be held to a maximum length of 30 M; then, a swale or an inlet must be used. Minimum slopes in swale centerlines shall be 0.5 percent. Maximum swale side slopes shall be 1V:4H and suggested maximum swale depth shall be 600 mm. Ditches shall not be permitted. Storm drain pipe, sheet flow surfaces, and swales shall be designed to prevent standing water under normal conditions for not less than 48 hours.

4-11.6 Drainage of Roads and Pavements. Provide a positive crown in all streets and roads. Minimum cross slopes in streets and roads shall 1:48 and the maximum cross slope shall be 1:32. Minimum sheet flow slopes across parking area and other paved areas shall be 1 percent. Curbs and gutters shall be installed at a minimum longitudinal slope of 0.30 percent. Pavement collectors for storm water shall be by curb inlets and gutters, or drop inlets. Field inlets and an underground collection system shall drain open areas. Ditches shall not be permitted. The amount of runoff to any one inlet in roads and parking areas shall not exceed the capacity of that inlet.

4-11.7 Materials. All materials shall be in accordance with Fort Lewis Design standards. Pipe for culverts and storm drains may be of reinforced concrete, smooth wall, ABS, PVC or HDPE.

4-11.8 Field Quality Control for Storm Drainage System. The Contracting Officer will conduct field inspections. Testing procedures and requirements shall comply with the Fort Lewis Design Standards.

4-12 PAVEMENT DESIGN CRITERIA. Pavement design shall be in accordance with the Fort Lewis Design Standards. Concrete curb and curb/gutter shall be required at the perimeter of all streets, roads, parking areas and interior islands. For streets and roads, the design vehicle for this facility is a multi-axled truck; the anticipated axle load for design is 142 kilonewtons. The Contractor shall design the pavement based on a California Bearing Ratio (CBR) of 30 for the compacted subgrade soils. Designs for streets, walks, roads and parking areas shall include adequate space for trees. Include landscape islands at the ends of rows of parking and every 10 to 12 parking spaces. The minimum width for parking lot islands and perimeter parking lot planting areas shall be 3.1 m the preferred width is 4.6 m.

4-13 PERMIT REQUIREMENTS. Timely acquisition of all the necessary design related permits shall be the responsibility of the Government; including the erosion and control permit, storm water management permit, discharge permit, and the health department permit(s). Operating permits and licenses shall be the responsibility of the Contractor, in

accordance with Section 00721, "Contract Clauses". Timely acquisition of all the necessary design and construction related permits shall be the responsibility of the contractor. As some permit process times take 6 months or more, the Contractor, upon notice to proceed, shall immediately begin working on the permits so as not to delay completion of the project. The following permits have been identified as being required for this project: Health Department Permits for Sanitary Sewer and Water, Storm Water Management, Erosion and Sediment Control, National Pollution Discharge Elimination Service Excavation Permit, Demolition Permit, and Disposal Permit.

4-14 GAS DISTRIBUTION SYSTEM. Natural gas will be the primary heating source with a propane/air mixture as the secondary source of fuel. This backup capability will allow the installation commander flexibility to provide mission support during specific natural gas supply interruption and to take advantage of the interruptible rates. New natural gas distribution piping shall be the responsibility of Puget Sound Energy (PSE) Co. Contractor shall coordinate with PSE for the installation of the new natural gas piping. Provide a gas distribution system, connected to existing systems and designed in accordance with local codes, utility company requirements, or installation regulations, whichever is more stringent. Gas distribution systems shall comply with the requirements of ASME B31.8. When connecting to existing steel piping system, provision shall be made to ensure that the integrity of the cathodic protection is not compromised. Shutoff valves shall be provided on the exterior of each building. A gas regulator and provision for future installation of an individual gas meter to monitor fuel use shall be provided for each building structure. The building service entrance shall be installed at a height sufficient to allow for future installation of the gas meter. Existing lines that are to be abandoned shall be either removed or physically disconnected from all gas sources and purged. Abandoning existing gas piping shall be done in accordance with ANSI B31.8, Gas Transmission and Distribution Piping Systems. Installation of gas piping will be in accordance with ANSI B31.8 and 49 CFR 192.

The propane/air piping shall be the responsibility of the Contractor and shall be installed parallel to the natural gas piping system. The central propane storage facilities shall be located at the northeast end of Echo block and the southwest end of Alpha Block. The central propane storage facility shall consist of all propane storage tanks, truck unloading stations, air compressors with air dryer, propane vaporizers, propane/air mixers and the propane transfer pumps. Mixing with air is required to burn propane in equipment set up for natural gas. A mixture will be provided which has a Wobbe Index Number roughly equivalent to that of natural gas. The Wobbe Index Number is defined as the Gross Heat Value divided by the square root of the Specific Gravity. When the Wobbe Index Number is roughly equivalent between two gaseous fuel sources, then the burner equipment setups do not require any alteration to switch between the fuel sources, and the equipment maintains the same heating capacity. The Contractor shall coordinate the propane/air connection point with propane/air piping that are installed under the FY02 and FY03 WBR projects. Propane/air connection for the FY02 WBR project buildings are adjacent to the cathodic protection boxes located near the gas meters. Propane tanks shall comply with requirements of NFPA 58 and the ASME Code, Section VII, Pressure Vessels. Tanks shall be pad mounted, and shall not be located inside any building. Tanks shall be provided with all required gauges, shut off valves, safety devices, and suction connections. Shut off valves shall be installed at each tank, at the service entry to the building (if not in sight of the tank), and at each heating unit. No shut off valve shall be installed between a safety device and tank. Propane pressure shall be reduced to a minimum service pressure of 3.5 kPa [$\frac{1}{2}$ psi] prior to the building entrance. Propane pipe connectors shall be in accordance with UL 567.

4-14.1 Materials. Materials and appurtenances shall be free of defects and suitable to accomplish the stated objectives of gas distribution systems. Pipe shall be polyethylene or steel as described below.

4-14.1.1 Polyethylene pipe. Shall conform to ASTM D2513, Standard Specification for Thermoplastic Gas Pressure Piping Systems, with fittings complying with either ASTM D2513 or ASTM D2683, Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing. Connections to metal pipe shall comply with ANSI B16.5, Pipe Flanges and Flanged Fittings, or manufacturer's recommended standards.

4-14.1.2 Steel pipe. Shall conform to ASTM A 53, Grade A or B, Type E or S, Schedule 40. Furnace butt welded pipe may be used in sizes 40 mm [1-1/2 inch] and smaller. Fittings 40 mm [1-1/2 inch] and smaller shall conform to ASME B16.11. Pipe flanges and flanged fittings larger than 40 mm [1-1/2 inch], including bolts, nuts, and bolt patterns shall be in accordance with ASME B16.5, Class 150. Butt weld fittings shall be in accordance with ASME B16.9. Weld neck flanges shall be used.

4-14.2 Testing. Prove that the entire system of gas mains and service lines is gas-tight by an air test, in accordance with ANSI B31.8. The test shall continue for at least 24 hours between initial and final readings of pressure and temperature.

4-14.3 Drips. Unless high pressure natural gas is used, drips shall be installed at the low points, immediately following reduction from high pressure to medium pressure (at supply points) and at occasional low points throughout the system to provide for blowing out the lines.

4-14.4 Valves. Plug valves shall be installed at intersections of mains and other locations so that interruptions to service can be confined to no more than one building.

4-14.5 Mains and service lines. Lines shall not be placed under any buildings. Lines shall be placed with a minimum of 0.6 m [2 ft] of earth cover. Protective casings shall be provided to protect lines from superimposed street or heavy traffic loads.

4-15 **HEATING HOT WATER DISTRIBUTION.** (For exterior, underground heat distribution system as applicable) Prefabricated piping system shall be installed to supply and return heating hot water to mechanical equipment rooms. Metallic pressure pipe, fittings, and piping accessories shall conform to the requirements of ASME B31.1 and shall be types suitable for the temperature and pressure of the water.

4-15.1 Piping materials.

4-15.1.1 Steel pipe. Piping shall conform to ASTM A 53, Grade B, standard weight, black or to ASTM A 106, Grade B, standard weight.

4-15.1.2 Copper tubing. Copper tubing shall conform to ASTM B 88, Type K or L.

4-15.1.3 Reinforced Thermosetting Resin Pipe (RTRP). RTRP pipe shall conform to ASTM D 5686.

4-15.1.4 Polyvinyl Chloride (PVC) Pipe. PVC pipe shall conform to ASTM D 2241 with a Standard Thermoplastic Pipe Dimension Ratio (SDR) of 26 and PVC 1120 or 1220 as the material.

4-15.2 Casing materials.

4-15.2.1 Polyvinyl Chloride (PVC) Casing. PVC casings shall conform to ASTM D 1784, Class 12454-B with a minimum thickness equal to the greater of 1/100 the diameter of the casing or 1.50 mm. 60 mils.

4-15.2.2 Polyethylene (PE) Casing. Polyethylene casings shall conform to ASTM D 1248, Type III, Class C, Category 3 or 4, Grade P 34 with thickness as follows:

Casing Diameter (in mm)	Minimum Thickness (in mm)
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250 and smaller	3
250 to 450	4
450 to 600	5
over 600	6

Casing Diameter (in inches)	Minimum Thickness (in mils)
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10 and smaller	125
10 to 18	150
18 through 24	200
over 24	225

4-15.2.3 Reinforced Thermosetting Resin Pipe (RTRP) Casing. RTRP casing shall be of the same material as the pipe, with casing thickness as follows:

Casing Diameter (in mm)	Minimum Thickness (in mm)
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200 and smaller	1.2
250	2.0
300	2.7
350	2.9
400 to 450	3.0
500	3.2
600	3.9

Casing Diameter (in inches)	Minimum Thickness (in mils)
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8 and smaller	70
10	80
12	105
14	115
16 to 18	120
20	125
24	155

4-15.3 End seals. Each preinsulated section of piping shall have a complete sealing of the insulation to provide a permanent water and vapor seal at each end of the preinsulated section of piping. Preinsulated sections of piping modified in the field shall be provided with

an end seal which is equivalent to the end seals furnished with the preinsulated section of piping. End seals must be tested and certified in accordance with manufacturer's recommendations.

4-15.4 Insulation.

4-15.4.1 Factory applied insulation. Prefabricated pipe and fittings shall be insulated in the factory. Foam insulation for prefabricated insulated pipe and fittings shall be polyurethane foam meeting the requirements of ASTM C 591 having a density not less than 32 kg per cubic meter (2 pounds per cubic foot). The polyurethane foam shall completely fill the annular space between the carrier pipe and the casing. Insulation thickness shall be a minimum of 20mm (0.9inches). The insulation thermal conductivity factor shall not exceed the numerical value of 0.02 W/mK at 24 degrees C (0.15 Btu-inch/square foot-degree F-hour at 75 degrees F), when tested in accordance with ASTM C 518. Manufacturer shall certify that the insulated pipe is free of insulation voids.

4-15.4.2 Field applied insulation. Field applied insulation for fittings, and field casing closures, if required, and other piping system accessories shall be polyurethane matching the pipe insulation. Thickness shall match adjacent piping insulation thickness. Buried fittings and accessories shall have field applied polyurethane insulation to match adjacent piping and shall be protected with a covering matching the pipe casing. Shrink sleeves with a minimum thickness of 1.3 mm 50 mils shall be provided over casing connection joints.

4-15.5 Thrust blocks. Thrust blocks shall be installed at the locations shown or recommended by the pipe system manufacturer. No pipe joint shall be embedded in concrete unless the assembly has previously been hydrostatically tested. The thrust blocks shall provide for transfer of thrusts and reactions without exceeding the allowable stress of the concrete and shall be installed in accordance with pipe manufacturer's instructions. In muck or peat, all thrusts shall be resisted by piles or tie rods to solid foundations or by removal of peat or muck which shall be replaced with ballast of sufficient stability to resist thrusts.

4-15.6 Expansion Compensation. Expansion loops, expansion slip joints or expansion bends (Z- and L- type) shall be factory fabricated of casing, insulation, and carrier piping identical to that furnished for straight runs. Expansion loops and bends shall be properly designed in accordance with the allowable stress limits indicated in ASME B31.1 for the type of pipe used. Expansion loops, joints or bends shall be shipped to the jobsite in the maximum size sections feasible to minimize the number of field joints. The expansion loops, joints or bends casing and insulation where applicable, shall be suitably sized to accommodate pipe movement. Field joints shall be made in straight runs of the expansion loops, joints or bends, and the number shall be kept to a minimum.

4-15.7 Manholes and anchors. Manholes shall be designed and installed as recommended by the system manufacturer. Anchor design shall be in accordance with the published data of the manufacturer and for prefabricated systems shall be factory fabricated by the prefabricated system manufacturer. In all cases, the design shall be such that water penetration, condensation, or vapor transmission will not wet the insulation.

4-15.8 Installation. The piping system furnished shall be installed in accordance with the piping system manufacturer's instructions. The Contractor shall obtain the services of a trained representative of the pipe system manufacturer to instruct the Contractor's work forces in the installation procedures to ensure that the system is installed in accordance with the manufacturer's published instructions and the plans and specifications. The manufacturer's representative shall be a person who regularly performs such duties for the manufacturer.

4-15.9 Testing. The carrier piping shall be hydrostatically tested at 1 ½ times the working pressure for the system. The casing shall be tested in accordance with the manufacturer's recommendations.

4-16 ELECTRICAL DISTRIBUTION. The existing power distribution system on North Fort Lewis is a 13.8 kV, single point grounded wye system. The existing feeders are controlled by the Sequelitchew Substation, which is located southeast of the North Fort site along Vancouver Road. Two aerial feeders extend from Sequelitchew to supply the North Fort and other remote loads. In the FY95 and FY97 Whole Barracks Projects, portions of the system were converted to an underground system with the main feeder and switches installed along D Street. The system can be described as a loop system. The feeder starts at the substation, loops through the feeder-load area, and returns to the substation. Laterals have been tapped off the loop main to obtain the load area coverage. The loop is operated normally open by having one of the tie switches open at some point around the loop. When operated normally open, each half is similar to a straight radial feeder. Fault energy at the substation primary is 11073 Amps three-phase and 6748 Amps line to ground.

4-16.1 ECHO BLOCK

In the FY02 Whole Barracks Project, the infrastructure that had been installed along D Street was expanded to cover Echo Block. The utility design in FY02 mirrored the existing configuration used for previous years projects. Three Large Company Operations Facilities and two Large Battalion Headquarters shall be constructed by this project and connected to the existing distribution system.

4-16.2 ALPHA BLOCK

The design for Alpha Block is based upon the North Fort Utilities Study, which has been further developed by the Seattle District. The Alpha Block Master Plan includes the upgrade of the electrical distribution system within the area bounded by D Street and A Street, between 41st Division Drive and 8th Street. Future connections will be made to the systems laid out along D Street and then extended into Alpha Block as it is developed. These runs will be connected to a main trunk line, similar to the configuration used along D Street, to create a loop through Alpha Block. In the FY95 and FY97 Whole Barracks Renewal Projects, a primary ductbank was routed along 41st Division Drive between D Street and 32nd Division Drive. The Athletic Complex project extended the ductbank along 41st Division Drive from D Street to C Street. The ductbank crosses C Street and is capped. In the FY04 Whole Barracks project, the barracks site is located along 41st Division Drive midway between C Street and A Street. Starting at C Street, extend the infrastructure along 41st Division Drive to provide primary power to the barracks site. The existing street lighting circuit along 41st Division Drive may be used for power for the landmark feature.

4-16.3 Underground Distribution. System shall consist of buried conduit and copper conductors. Design shall be in accordance with ANSI C2 and NFPA 90. A common ductbank system for communications and power will be utilized as much as practical with 10 meter separation between communications and power vaults.

4-16.3.1 ECHO BLOCK

The utility design for Echo Block was done in the FY02 Whole Barracks project and expanded in the FY03 project. The facilities to be installed, as part of this portion of the FY04 project, shall be connected to the systems installed in the previous projects.

4-16.3.2 ALPHA BLOCK

Primary power shall be installed in underground concrete encased schedule 40 PVC ductbanks. As a minimum, each power ductbank will contain one active 103 mm conduit and one spare 103 mm conduit. Electrical vaults and manholes shall be installed as required. Primary cables shall be medium voltage (15 kV), copper with ethylene-propylene-rubber in accordance with NEMA WC-7 and shall have 133 percent insulation. A fourth conductor, included in the underground cabling for ground connection, shall be a bare copper conductor and placed in the concrete encasement of the ductbank. Trunk lines shall be sized at 129mm with 500kcmil conductors per the North Fort Utility Study. Taps in the trunk lines shall be provided by pad-mounted, fusible switchgear. Taps for the laterals to pad-mounted transformers shall be done using underground junctions. In-line splicing of the primary conductor is prohibited. Provide underground junctions where splices are required. Switchgear shall be vacuum bottle per installation request. Manholes shall be provided with stub-outs in the direction of the future barracks sites along 41st Division Drive. The primary run shall be terminated in a manhole at the corner of B Street and 41st Division Drive. Provide stub-outs from the manhole to be used as a connection point for the future projects to create a primary loop through Alpha Block.

4-16.4 Service Entrance. Service entrance equipment and installation shall be in accordance with NFPA 70.

4-16.5 Transformers. Transformers shall be pad mount, oil insulated, self-cooled, mounted on vaults, with high efficiency core. The high voltage compartment shall contain incoming primary feeder, load break switch, fuse protection and surge protection. The nameplate rating for the transformer shall not be less than 90 percent of the KVA demand load calculated for the transformer. Primary protection shall be drawout drywell mounted current limiting fuses in series with an internal expulsion fuse, with the current limiting fuse clearing high current faults, and the expulsion fuse clearing low current faults. Accessories include load break gang operated primary switch, loop feed, and surge protection. Primaries are dead front construction; secondaries are live front. MOV type lightning arresters, warning signs, grounding connection pads in high and low voltage compartments, dial type thermometer, liquid level gauge, and drain valve with built in sampling tube shall be specified for the transformers to be installed in this project. The transformer shall have two four point grounding systems consisting of four copper clad steel ground rods, 3 meters long, connected together with #1/0 stranded bare copper wire, one system for the neutral and one for the arrester/equipment ground. Primary conductors within the transformer vault shall be looped, racked, and firetaped.

4-16.6 Street and Area lighting.

4-16.6.1 ECHO BLOCK. The street lighting for Echo Block was done in the FY02 Whole Barracks project and does not require modification for this project. Parking and walkway lighting for the facilities to be installed, as part of this portion of the FY04 project, shall match the fixtures installed in the previous projects around the buildings and Troop Training Area.

4-16.6.2 ALPHA BLOCK. Residential roadway lighting, including collector streets, shall be provided in accordance with the IES Lighting Handbook. Provide lighting at roadway intersections, and at intervals not exceeding 60.9 m (200 ft) between intersections. Area lighting shall be provided at intervals not exceeding 60.9 m (200 ft) along area walkways not otherwise illuminated, common area walks, and at all steps in area walkways. Area lighting shall be provided in accordance with the IES Lighting Handbook. Bollard lighting shall be used in pedestrian areas. Bollards shall be concrete with high-pressure sodium lamps. Square concrete poles fitted with shoebox style high-pressure sodium lighting shall be used in parking lots. Luminaries shall be actuated by photoelectric control, one photocell per circuit and time clocks. Exterior lighting circuits shall be provided with manual override.

4-16.7 Metering. A digital circuit monitor shall be provided for metering, voltage and current display, and UMCS/EMCS/DDC connection. Metering includes kWh meter with 15-minute demand. The monitor consolidates functions at a reasonable price. Overcurrent protection is by circuit breakers. Meters shall be installed at all service entrance distribution switchboards and/or panelboards.

4-17 TELEPHONE. The Contractor will furnish and install distribution cables for the Army telephone system, only. Qwest shall supply and install the cables for their system. Trenching and backfill required to install the conduits, ductbanks and manholes shall be included in the construction contract. Coordinate with Installation Director of Information Management (DOIM) for specific requirements.

4-17.1 ECHO BLOCK

The communications design for Echo Block was done in the FY02 Whole Barracks project and expanded in the FY03 project. The facilities to be installed, as part of this portion of the FY04 project, shall be connected to the systems installed in the previous projects. A minimum of four 103 mm PVC, concrete encased, entrance conduits will be provided from the existing communications manholes into the main communications room of each building. One of the 103mm conduits shall contain four 27mm innerducts, each equipped with a pullwire. From the existing trunk cables, copper telephone and fiber optic building entrance cable shall be provided and protected according to NFPA 70, NEC 2002. Building entrance protectors shall be sized for 100 pair cable, shall be balanced solid state self restoring arresters, shall incorporate heat coils for additional sneak current protection, and shall be grounded and located in the main communications room according to NFPA 70, NEC 2002. The output side of the protector units shall be 66-type insulation displacement contact (IDC) wiring block. A 24 strand fiber optic cable shall be brought into each building.

4-17.2 ALPHA BLOCK

In the FY95 and FY97 Whole Barracks projects, an RSU building was constructed at 32nd Division Drive and 17th Street. A communications ductbank was installed from the RSU along 32nd Division Drive to 41st Division Drive and down 41st Division Drive to D Street. The Athletic Complex project increased the number of ducts in the ductbank from 4 to 12 and extended the ductbank along 41st Division Drive from D Street to C Street. The ductbank crosses C Street and has been extended down 41st Division Drive by the Ft. Lewis DOIM. There are three barracks complexes planned along 41st Division Drive between C Street and A Street. However, only one site is to be developed as part of this project. Therefore, the existing ductbank will be adequate for this site. Manholes shall be provided as required. A

minimum of six 103 mm PVC, concrete encased, entrance conduits shall be provided from the new communications manhole into the main communications room. Four 27mm innerducts, each equipped with a pull rope, shall be installed in one of the 103mm conduits from the communications manhole into the main communications room. From the main communications room to each of the barracks buildings, provide four 103mm conduits. Four 27mm innerducts, each equipped with a pull rope, shall be installed in one of the four 103mm conduits routed to the barracks buildings.

The communications systems consist of Army telephone, Qwest telephone, Army fiber, Qwest fiber, and vendor CTV. The systems shall utilize a common supporting structure, per agreement between parties, which consists of ductbanks and manholes. Note that individual ducts are not shared because of liability issues; Army, Qwest, and TV each have separate ducts. Service to the Barracks shall consist of Qwest supplied dial tone to outlets in the living units and Army supplied dial tone to outlets in the administration areas.

Fiber

Three 24-strand fiber optic cables shall be installed to an area distribution node (ADN) in the Soldier Community Building of the Barracks. From this ADN, fiber optic cabling will be routed to the administrative areas of the future barracks. The ADNs consist of cabling and space provisions only; future projects will install equipment. Fiber optic cables shall be installed from the Soldier Community Building to the individual barracks buildings for the DDC network connections. Coordinate with the DOIM for the specific requirements.

Telephone

Cabling is sized to connect the facilities constructed under this project. Cabling is provided only within the site area of the barracks construction and the landmark feature. Copper telephone building entrance cable for the Army supplied communications shall be provided and protected according to NFPA 70, NEC 2002. Building entrance protectors shall be sized for 100 pair cable, shall be balanced solid state self restoring arresters, shall incorporate heat coils for additional sneak current protection, and shall be grounded and located in the main communications room according to NFPA 70, NEC 2002. The output side of the protector units will be 66-type insulation displacement contact (IDC) wiring block.

(a) **Army Telephone Cables.** The barracks will receive Army cables for administration telephones, and facility alarm and monitoring equipment, such as IDS and EMCS.

(b) **Qwest Cables.** Qwest provides outside plant cable from their DCO, in Army supporting structures, to serve the barracks. Qwest provides dial tone and residents arrange directly with Qwest for service.

4-18 TELEVISION. The Contractor shall provide all trenching, conduit, and backfilling required to install the ductbank system to support the commercial television systems. The cable television company shall provide and install their cables and equipment.

4-19 CATHODIC PROTECTION. Cathodic Protection (CP) is mandatory on buried ferrous metallic structures as described below:

4-19.1 Department of Transportation guidance. Shall be as stated in 49 CFR, Part 192, requires that all metallic natural gas piping be coated and cathodically protected regardless of the soil resistivity.

4-19.2 Corrosion control. Mandated for all metallic underground storage tanks storing petroleum or hazardous substance by 40 CFR, Part 280 and AR 200-1 and on hazardous liquid pipelines (e.g., liquid fuel) by 49 CFR, Part 195.

4-19.3 Design requirements. CP systems must be designed to provide protective potential to meet the requirements of the National Association of Corrosion Engineers (NACE) Standard RP-0169, Control of External Corrosion on Underground or Submerged Metallic Piping Systems, or NACE Standard RP-0185, Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems, as appropriate.

4-19.4 Compatibility. New or supplemental CP systems shall be compatible with existing CP systems and other adjacent structures or components. New systems should be compatible with existing systems to allow ease of repair and maintenance.

4-19.5 Tracer wire. When plastic pipe is used to extend a steel gas distribution main, an insulated No. 8 AWG copper wire shall be exothermically welded to the existing steel main and run the length of the new plastic main. This wire can be used as a locator tracer wire and to maintain continuity to any future steel gas main extension.

4-19.6 Coatings. CP and protective coatings shall be provided for the following buried and submerged ferrous metallic structures regardless of soil or water resistivity.

4-19.6.1 Natural gas and propane/air piping.

4-19.6.2 Fire protection piping.

4-19.6.3 Ductile or cast iron piping. Required for pressurized piping under floor (slab on grade) in soil.

4-19.6.4 Conduit piping systems. Required for underground heat distribution and chilled water piping in ferrous metallic conduit.

4-19.6.5 Hazardous storage structures. Structures with hazardous products as identified by the installation.

4-19.7 Cast iron pipe. Shall be treated as follows:

4-19.7.1 Below 10,000 Ohm-cm: For soil resistivity below 10,000 Ohm-cm at pipeline installation depth, provide CP, bonded joints, and protective coatings.

4-19.7.2 Between 10,000 and 30,000 Ohm-cm: For soil resistivity between 10,000 and 30,000 Ohm-cm at pipeline installation depth, provide bonded joints only.

4-19.7.3 Copper water service lines: Piping will be dielectrically isolated from ferrous pipe. Dielectric isolation shall conform with NACE RP-0286.

4-19.8 Ductile iron piping systems: Conduct an analysis (except for ductile iron piping under floor in soil) to determine if CP and/or bonded or unbonded coatings are required. Unbonded coatings are defined in ANSI/AWWA C105/A21.5.

4-19.9 Economic analysis: Conduct an economic analysis to determine if CP and protective coatings should be provided for gravity sewer lines and the following structures in soil resistivity conditions above 10,000 Ohm-cm:

4-19.9.1 Potable water lines.

4-19.9.2 Concentric neutral cable.

4-19.9.3 Other structures. Buried and submerged ferrous metallic structures not covered above.

4-19.10 Contact with concrete. Ferrous metallic piping passing through concrete shall not be in contact with the concrete.

CHAPTER 5

ARCHITECTURAL DESIGN

- 5-1 **DESIGN GOALS.** Overall architectural goals for the UEPH complex are to
- provide a functional, visually appealing campus of facilities consistent with a military installation.
 - create facilities that are a source of pride for residents, occupants, other facility users, and the installation.
 - meet all functional requirements of the occupying unit's mission.
 - develop a sustainable facility that minimizes its environmental impact and contributes to improved occupant health and welfare.

5-1.1 **Site Planning Objectives.** Provide a pedestrian-oriented site. Locate buildings to create outdoor spaces. Group buildings in configurations that create a sense of community and enable residents to readily identify their homes. Integrate sustainable design principles by retaining and using existing topography to advantage; preserve environmentally sensitive areas and reduce overall project impact on the site. On the Echo block site provide an extension of the existing master plan, and FY 02/03 construction programs, that preserves the visual continuity of the entire superblock.

5-1.2 **Exterior Design Objectives.** Design buildings to enhance the visual environment of the installation. Exterior materials, roof forms, and detailing shall comply with the Installation Design Guide, and shall be consistent and compatible with the immediate local context. Use durable, low-maintenance materials. Configure building massing and use exterior elements such as colonnades, porticos, entry porches, and material detailing to provide human scale. Design consistent with the weather conditions experience on this site, particularly the rainy fall and winter season. All buildings shall maintain the existing "neo – Georgian" style used at North Fort.

5-1.3 **Interior Design Objectives.** Arrange spaces in an efficient, functional manner. Provide simple circulation schemes that allow easy way finding within buildings. Use durable materials and finishes that can be easily maintained and provide a long service life without replacement. Materials and finishes that must be periodically replaced shall be avoided where possible and made easily removable when used. Maximize use of daylighting and operable windows. Use interior surfaces that are easy to clean and light in color. Avoid trendy or bright color schemes and patterns. Design UEPH interiors with a residential ambience. To the extent possible, design interiors that residents can personalize (for example, arrange living units to allow more than one furniture placement scheme; provide telephone and cable television jacks on multiple walls to allow optional locations for the desk). Structure interior spaces to allow maximum flexibility for future modifications; companies and battalions often change size or mission, requiring reconfiguration of facilities.

5-1.4 **Material and Product Selection Criteria.** Materials shall meet the requirements of the SOW. The SOW includes a range of specificity: some material requirements are specific (no option); other material requirements allow a range of options. The SOW requirements establish a minimum quality level. Higher quality materials will be judged more favorably. The offeror's proposal shall identify the quality level of all major materials to be provided.

5-2 APPLICABLE CODES AND STANDARDS. Except as specified otherwise in the RFP, design and construction of facilities shall comply with the latest editions (as of the date of the RFP) of the following codes and standards. Major criteria references for building design are listed below; additional requirements are included throughout the RFP. Where these criteria conflict, the most conservative requirements shall govern the design. Refer to Appendix A for a list of criteria references, and sources of availability.

5-2.1 National Fire Codes, published by the National Fire Protection Association (NFPA), including NFPA 101 Life Safety Code.

5-2.2 International Building Code (IBC) as amended by "Design: General Building Requirements (UFC 1-200-01).

5-2.3 Federal Std 795 Uniform Federal Accessibility Standards (UFAS), and Americans With Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG). Where these criteria conflict, the most stringent requirement shall apply.

5-2.4 "Department of Defense Minimum Antiterrorism Standards for Buildings" (UFC 4-010-01, 31 July 2002).

5-2.5 The Fort Lewis Installation Design Guide (IDG), excerpts of which are included in Attachment 9 to the Statement of Work.

5-2.6 "Design: Fire Protection Engineering for Facilities" (UFC 3-600-01).

5-3 IBC OCCUPANCY AND BUILDING TYPE CLASSIFICATIONS.

5-3.1 General. Occupancy classifications, construction types, allowable areas, maximum building heights, and fire separation requirements shall comply with the requirements of the International Building Code.

5-3.2 Application. Use of the IBC shall be consistent with the modifications incorporated in UFC 1-200-01 (see Attachment 13). Where UFC 1-200-01 refers to MIL-HDBK-1008C, substitute use of the superceding standard, UFC 3-600-01. In general, UFC 3-600-01 requires the use of NFPA 101 code requirements for building egress and life safety issues.

5-3.3 UEPH Buildings. Occupancy classification: Residential Group R-2. If Soldier Community Building is a separate facility (with less than 50 occupants): Business Group B.

5-3.4 Company Operations Facilities. Limited amounts of ammunition or other explosives will be periodically stored in the Arms Vault for periods of hours or days. Accordingly, the IBC will require classification of the space as a High-Hazard Group H-1. Assume that the total amount of explosive material will not exceed the maximum allowable quantity per control area (2 pounds when stored in an approved cabinet). Therefore, a separate building for hazardous storage will not be required. The Arms Vault shall also have interior and exterior signage indicating the weight of explosives limitation. Occupancy classification of administrative areas, and locker room facilities serving less than 50 occupants: Business Group B. Occupancy classification of supply areas: Storage Group S-2. Common Locker Rooms for 50 or more occupants: Assembly Group A-3.

5-3.5 **Battalion Headquarters.** Occupancy classification of administrative areas: Business Group B. Occupancy classification of classroom areas: Assembly, Group A-3.

5-3.6 **Lawnmower Storage Buildings.** Occupancy classification shall be Utility, Group U.

5-3.7 **IBC-NFPA 101 Occupancy Comparisons.** For the purposes of this project the following NFPA 101 occupancies shall be applied when the use of NFPA 101 is directed:

<u>IBC</u>	<u>NFPA 101</u>
Group A-3	New Assembly
Group B	New Business
Group H-1	no equivalent for partial occupancy
Group R-2	New Apartment
Group S-2	no equivalent for partial occupancy
Group U	Storage

5-4 EXTERIOR DESIGN.

5-4.1 **Acceptable Materials and Colors.** Exterior elements of the facilities shall comply with the Installation Design Guide (IDG) unless required otherwise by applicable codes or this Statement of Work. All exterior materials and colors for COF and BTN HQ facilities on Echo block shall be selected to blend with and complement the facilities constructed under the FY 02 and FY 03 programs. Conversely, the UEPH facilities located on Alpha block may develop a new material and color palette. The general Alpha block appearance should be compatible with the themes used throughout North Fort Lewis.

5-4.2 **Exterior Walls.** Comply with IDG. Where masonry exterior wall finish material is used, and where allowed by code, concrete masonry or metal stud backup wall may be used. Exterior insulation finish systems (EIFS) shall not be used as a primary wall surface material, but may be employed as an accent material. All walls at the first story level shall be resistant to damage and soiling resulting from pedestrian or vehicle contact. Wood and vinyl siding materials are not permitted on any facilities.

5-4.3 **Roofs.** Sloped roofs with a standard pitch of 5:10 shall be used on all buildings. Minimum roof pitch shall be 2.5:10. At COF, BN HQ and BN GA buildings and associated lawnmower storage buildings, the roof material shall be flat concrete tile with color matching tile used on other Echo block buildings. Alpha block roofing material and colors shall comply with the IDG. All roofing systems used shall have Underwriters Laboratory (UL) Class A rating for fire resistance and UL 90 wind resistance rating or Factory Mutual (FM) 1-90 fire and wind resistance rating. COE regulations prohibit the use of fire retardant treated wood panel products in roof systems due to accelerated decomposition.

5-4.3.1 **Metal Roofing.** System shall be a structural standing seam utilizing a concealed clip system. Provide manufacturers 20-year finish warranty. Finish shall be PVF² type.

5-4.3.2 **Asphalt Shingle Roofing.** Provide minimum 30-year shingles; provide minimum 30# felt underlayment. Provide self-adhering rubberized ice and water shield underlayment at all valleys, and roof perimeter.

5-4.3.3 **Concrete Tile Roofing.** System shall conform to the design criteria and installation instructions of the "Concrete and Clay Roof Tile Installation Manual for Moderate

Climate Regions” by the Roof Tile Institute and Western States Roofing Contractors Association (1 January 2002 or current edition). Provide self-adhering rubberized ice and water shield underlayment at all valleys, and roof perimeter.

5-4.3.4 Photovoltaic (PV) Roof Systems. Use of an integrated PV roof system (PV tiles) as a demonstration project is encouraged, but not required.

5-4.3.5 Fall Protection Anchors. Permanent fall protection anchors points meeting OSHA regulations shall be provided on roof ridges. Anchor spacing shall not exceed 4000 mm.

5-4.4 Trim and Flashing. Materials and colors shall comply with IDG. Gutters, downspouts, and fascias shall be prefinished metal. All flashings used with concrete roof tile systems shall be copper, 16 ounce minimum weight. Detailing of all sheet metal components shall comply with SMACNA Architectural Sheet Metal Manual. Provide 20-year manufacturers finish warranty. Finish shall be PVF² type.

5-4.5 Miscellaneous Exterior Elements. Comply with IDG. The use of exposed wood on building exteriors is prohibited. Do not use ferrous metals for access doors, louvers, vents, light fixtures and similar items. Metal and finishes selected shall provide zero maintenance weathering regardless of exposure. All exterior metal railings shall be anodized aluminum or stainless steel.

5-4.6 Exterior Signage. Comply with IDG. Provide and install construction signage as indicated in specification Section 01501 included in section 00890. Provide the following permanent site and exterior building signage. Refer to standardized signage details in Attachment 7.

5-4.6.1 Building Numbers: Each independent building shall be provided with Building Number signs. Building numbers will be provided by the Government. Signage shall be consistent with Fort Lewis Signage regulation 420-18 and Detail F, Plate A702, Attachment 7. Provide four building number signs on each building, with one sign each side of diagonal corners.

5-4.6.2 UEPH Entrance: If a UEPH building scheme is used that employs multiple buildings and/or multiple building entrances to a limited number of room modules, provide signage at the entrance door identifying the room modules accessed by that entrance. See Detail E, Plate 702, Attachment 7 for an example.

5-4.6.3 COF Building/Unit Signs: COF signs shall be constructed to match those used at Echo Block facilities developed in the FY 02 and FY 03 projects. See Company Sign detail on Plate A701, Attachment 7. For specifications, see 00890, Section 02870 Site Furniture. For approximate locations, see Plate L101.

5-4.6.4 BN HQ and BN GA Buildings/Unit Signs: BN signs shall be constructed to match those used at Echo Block facilities developed in the FY 02 and FY 03 projects. See Battalion Sign detail on Plate A701, Attachment 7. For specifications, see 00890, Section 02870 Site Furniture.

5-4.6.5 Guidons: Guidons (support base for unit commander’s flag) are required at each separate COF unit/facility (2 required per building). See detail on Plate C111 in Attachment

1. For specifications, see 00890, Section 02870 Site Furniture. For approximate locations, see Plate L101.

5-4.6.6 Fire Department Signage: Provide building mounted locator signs that identify the locations of "Fire Department Connection" and "Gas Shut Off" at each building. Position (height) of signage shall ensure that the sign is not obstructed by site features or vegetation and is visible to approaching vehicles. See Detail G, Plate A702, Attachment 7 for example.

5-4.6.7 Site Signage: Provide and install site signage at Alpha Block and Echo Block streets and parking installed under this contract and meeting installation and Washington State standards for traffic control signage. See details on Plate A701, Attachment 7 for examples of configuration and materials.

5-4.7 Exterior Doors and Frames.

5-4.7.1 Main Entrance Doors. Doors opening to building corridors or lobbies shall be aluminum storefront doors and frames with Architectural Class I anodic finish or AAMA 2605 organic coating finish. Color shall comply with IDG. Doors shall be minimum 45 mm thick. Fully glazed stile and rail doors shall be medium or wide stile. Provide aluminum storefront systems that comply with wind load requirements of applicable codes. Framing systems shall have thermal-break design.

5-4.7.2 Exterior Non-entrance Doors. Exterior doors and frames opening to spaces other than corridors or lobbies shall be hollow metal; comply with ANSI A250.8/SDI 100. Doors shall be Level 3, physical performance Level A, Model 2, seamless; insulated; top edge closed flush. Frames shall be Level 3, 14 gauge, with continuously welded corners and seamless face joints. Doors and frames shall be constructed of hot dipped zinc coated steel sheet, complying with ASTM A653, Commercial Steel, Type B, minimum A40 coating weight; factory primed. Anchors and accessories shall be zinc coated. Frames in masonry shall have bituminous back-coating, plaster guards, and shall be grouted solid. Fire-rated openings shall comply with NFPA 80, and the requirements of the labeling authority.

5-4.7.3 Exterior Door Finish Hardware.

5-4.7.3.1 Hinges. ANSI/BHMA A156.1; template, full mortise, heavy duty, ball bearing, minimum size 4 1/2" x 4 1/2", non-ferrous base metal, non-removable pins. Use geared hinges at doors with high frequency use, such as building entrances and stair exits, or where exposed to the wind.

5-4.7.3.2 Locksets on Aluminum Entry Doors. ANSI/BHMA A156.13; mortise lockset with removable core; non-ferrous base metal. Coordination of hardware by Aluminum Door supplier. Use fixed pulls for entrance, use exit devices where required by code.

5-4.7.3.3 Locksets on Exterior Hollow Metal Doors. ANSI/BHMA A156.2; series 4000, Grade 1, non-ferrous base metal, removable core. Lockset function consistent with room function.

5-4.7.3.4 Exit (Panic) Devices. ANSI/BHMA 156.3; heavy-duty, modern touch-pad type, through-bolted mounting. Listed and labeled for panic protection based on UL 305.

5-4.7.3.5 Closers. ANSI/BHMA A156.4; series C02000, Grade 1, hydraulic, factory-sized, adjustable to meet field conditions. Provide for all exterior doors, all entry doors to living units, all doors opening to corridors and as required by codes. At exterior doors to lobbies, corridors, mechanical rooms, janitors closets, and COF supply areas provide overhead holders or closers with hold-open capability. Install in tandem with door stops to ensure that door position is not maintained by closers alone.

5-4.7.3.6 Auxiliary Hardware. ANSI/BHMA A156.16. Provide wall or floor stops for all exterior doors that do not have overhead holder/stops. Provide other hardware such as flush bolts, astragals, meeting styles, etc., as necessary for a complete installation. Coordinate location of floor stops to reduce tripping hazards.

5-4.7.3.7 Thresholds. ANSI/BHMA A156.21; non-ferrous metal. Provide at all exterior doors.

5-4.7.3.8 Weatherstripping. ANSI/BHMA A156.22. Provide at all exterior doors.

5-4.7.3.9 Kick Plates. ANSI/BHMA A156.6; non-ferrous metal. Provide at all doors with closers.

5-4.7.3.10 See Section 00890 – 08710 for additional direction on door hardware requirements.

5-4.8 Exterior Windows. Provide aluminum windows complying with American Architectural Manufacturers Association AAMA/NWWDA 101 / I.S. 2. Minimum performance class shall be Heavy Commercial (HC). Minimum wind load, and resulting design pressure and performance grade shall be determined in accordance with the International Building Code (IBC). All exterior windows (including glazed doors) shall also comply with UFC 4-010-01, paragraph B-3.1 and subparagraphs. Provide windows with insulating glass and thermal break necessary to achieve a minimum Condensation Resistance Factor (CRF) of 45. Finish shall be Architectural Class I anodic coating or AAMA 2605 organic coating. All sleeping rooms shall have operable windows complying with secondary egress requirements of NFPA 101 and IBC. Operable windows shall have locks. At vents provide fiberglass or aluminum insect screens removable from the inside.

5-4.8.1 Exterior Glass and Glazing. All glass and glazing shall comply with antiterrorism minimum standards. Single glazing and the inner pane of insulated glass assemblies in exterior windows and doors shall be minimum 6 mm annealed laminated glass. Provide thicker glass section as required by window area and loading criteria.

5-4.8.2 Window Frames and Structural Subframes. Exterior frames, mullions and window hardware shall comply with antiterrorism minimum standards (UFC 4-010-01). In particular, review paragraph B-3.1.2 of attachment 12. Offerors are cautioned to carefully evaluate this standard as it may require the use of a dedicated structural subframe at each window to accommodate the loads stipulated.

5-4.9 Thermal Insulation. Provide exterior wall, floor, and roof/ceiling assemblies with thermal transmittance (U-values) required to comply with the proposed energy calculations for the facilities. Insulation shall not be installed directly on top of suspended acoustical panel ceilings. Review use of foamed in place insulations for exterior wall construction to minimize U-values while limiting air migration through the wall system. Design of

insulation/wall systems shall include vapor retarders and air barriers to reduce damage from trapped moisture.

5-4.10 Exterior Noise Control. There are no exceptional exterior noise problems at these sites. However, due to twenty four hour work schedules, windows in barracks room modules shall be designed to mitigate ambient noise levels that would disturb day sleepers.

5-5 INTERIOR DESIGN.

5-5.1 Floors. Comply with requirements of applicable codes. Non-combustible construction is preferable, even where combustible materials are allowed by code. Floor finish materials shall be as specified in functional and area requirements listed in Chapter 2 of the Statement of Work.

5-5.1.1 Ceramic Tile. Comply with ANSI A 137.1 and the recommendations of Tile Council of America (TCA) Handbook For Ceramic Tile Installation. Provide marble threshold under doors where a ceramic tile floor meets a different floor finish.

5-5.2 Interior Walls and Partitions. Comply with requirements of applicable codes. Non-combustible construction is preferable, even where combustible materials are allowed by code. Wall finish materials shall be as specified in functional and area requirements listed in Chapter 2 of the Statement of Work. All UEPH room modules require acoustic isolation from each other and adjacent corridors. In addition, each living/sleeping room shall be acoustically independent from the paired living/sleeping room in that module. See sound transmission requirements listed in Chapter 2 of the Statement of Work.

5-5.2.1 Metal Support Systems. Non-load bearing metal studs and furring used in interior partitions shall comply with ASTM C 645; stud gauge shall be as required by height and loading, but shall not be less than 25 gauge. Maximum stud spacing: 406 mm on center. Provide galvanized finish.

5-5.2.2 Gypsum Board. Comply with ASTM C 36. Minimum panel thickness: 16 mm. Provide Type X panels in fire-rated assemblies. Provide moisture resistant panels at locations subject to moisture. Provide abuse-resistant or impact resistant panels where indicated in functional and area requirements. Corridor and stair walls in barracks shall be constructed with abuse resistant GWB. Joint treatment: ASTM C 475. Screws ASTM C 646. Drywall installation: ASTM C 840.

5-5.2.3 Ceramic Tile. Comply with ANSI A 137.1 and the recommendations of Tile Council of America (TCA) Handbook For Ceramic Tile Installation. Substrate for wall tile shall be mortar setting bed or cement backer board (gypsum board is not acceptable). Provide marble threshold under doors where a ceramic tile floor meets a different floor finish.

5-5.3 Ceilings. Comply with requirements of applicable codes. Non-combustible construction is preferable, even where combustible materials are allowed by code. Ceiling finish materials shall be as specified in functional and area requirements listed in Chapter 2 of the Statement of Work. Suspended acoustic ceilings are prohibited in barracks buildings.

5-5.4 Interior Doors and Frames. Provide hollow metal doors, or flush solid core wood doors at UEPH and offices/administrative spaces. Provide hollow metal doors at COF supply rooms. All frames shall be hollow metal.

5-5.4.1 Wood Doors. Provide flush wood solid core doors complying with Wood Door Manufacturer's Association (WDMA) I.S.-1A. Stile edges shall be non-finger jointed hardwood compatible with face veneer. Door construction/appearance shall be consistent with WDMA Premium grade or American Woodwork Institute (AWI) Custom grade. Use AWI Grade A hardwood face veneer for transparent finished doors; provide AWI Sound Grade hardwood face veneer for painted doors. Use book matched, balanced veneer pattern. Transparent finished doors are preferred.

5-5.4.2 Hollow Metal Doors. Comply with ANSI A250.8/SDI 100. Doors shall be Level 2, physical performance Level B, Model 2, seamless; factory primed.

5-5.4.3 Hollow Metal Frames. Comply with ANSI A250.8/SDI 100. Frames shall be Level 2, 16 gauge, with continuously welded corners and seamless face joints; factory primed. Anchors and accessories shall be zinc coated. Frames in masonry shall have bituminous back-coating, plaster guards, and shall be grouted solid. Frames in steel stud framed walls shall be grouted with gypsum type grout.

5-5.4.4 Fire-rated and Smoke Control Doors and Frames. Comply with International Building Code (IBC), NFPA 80, and requirements of labeling authority. Doors and frames shall bear labels from IBC approved testing laboratory. Comply with positive pressure testing requirements of IBC. Protect labels during painting. Illegible labels shall be cause for rejection of the door and/or frame.

5-5.4.5 Interior Door Finish Hardware.

5-5.4.5.1 Hinges. ANSI/BHMA A156.1; template, full mortise; heavy duty, ball bearing on doors with closers; standard duty anti-friction bearing on doors without closers. Minimum size: 4 1/2" x 4 1/2".

5-5.4.5.2 Locksets on Living Unit (Room Module) Entry Doors. Programmable push button type – ILCO Unican 4000 series with lever trim.

5-5.4.5.3 Locksets on Interior Doors. ANSI/BHMA A156.2; series 4000, Grade 1, non-ferrous base metal, removable core. Room module living/sleeping room doors shall have a Unican 1000 Series (1021B) lockset.

5-5.4.5.4 Exit (Panic) Devices. ANSI/BHMA 156.3; heavy-duty touch-pad type, through-bolted mounting. Listed and labeled for panic protection based on UL 305.

5-5.4.5.5 Closers. ANSI/BHMA A156.4; series C02000, Grade 1, hydraulic, factory-sized, adjustable to meet field conditions. Provide for all entry doors to living units, all doors opening to corridors and as required by codes. Select closer type to place closers on room side of doors. Avoid closers exposed to view in lobbies, corridors and other public areas of buildings.

5-5.4.5.6 Auxiliary Hardware. ANSI/BHMA A156.16. Provide wall or floor stops for all doors that do not have overhead holder/stops. Provide other hardware as necessary for a complete installation. Coordinate requirement for solid blocking behind wall stops in all stud walls.

5-5.4.5.7 Kick Plates and Mop Plates. ANSI/BHMA A156.6; non-ferrous metal. Provide kick plates at all doors with closers. Provide mop plates at all rooms (public toilets, locker rooms, shower rooms, etc.) with floors requiring wet mop type maintenance.

5-5.4.5.8 See Section 00890 – 08710 for additional direction on door hardware requirements.

5-5.5 Limitations on Use, Classification, and Flame Spread and Smoke Developed Ratings of Interior Finishes. Refer to paragraph 12-4.2.

5-5.6 Casework.

5-5.6.1 Service Areas in Living Units (Room Module) and Coffee Areas in Admin Areas. Provide architectural cabinets complying with AWI Quality Standards, Section 400, Custom Grade cabinets with high-pressure decorative laminate finish, meeting NEMA LD3 standards. Horizontal laminate: nominal .050" thick; vertical laminate: nominal .028" thick. Door and drawer edges shall be heavy-duty 3 mm extruded polyvinyl chloride with self-locking serrated tongue. Countertop shall be post-formed high-pressure decorative laminate or solid surfacing material. Countertop shall have no-drip waterfall front edge and integral coved backsplash. Provide side splash where countertop adjoins sidewall(s).

5-5.6.2 Bathroom Vanity in Living Units. Provide architectural cabinets complying with AWI Quality Standards, Section 400, Custom Grade cabinets with high-pressure decorative laminate finish, meeting NEMA LD3 standards. Horizontal laminate: nominal .048" thick; vertical laminate nominal .028" thick. Door and drawer edges shall be heavy-duty 3 mm extruded polyvinyl chloride with self-locking serrated tongue. Vanity countertop shall be post-formed high- pressure decorative laminate or solid surfacing material. Countertop shall have no-drip waterfall front edge and integral coved backsplash with side splash at adjacent walls.

5-5.6.3 UEPH Building CQ Station Reception Desk. Provide architectural casework complying with AWI Quality Standards, Section 400, Custom Grade cabinets with high-pressure decorative laminate finish meeting NEMA LD3 standards. Horizontal laminate: nominal .048" thick; vertical laminate: nominal .028" thick. Door and drawer edges shall be heavy-duty 3 mm extruded polyvinyl chloride with self-locking serrated tongue. Work surfaces and counter shall be high-pressure decorative laminate, or solid surfacing material. Reception desk should be designed as an entrance accent feature.

5-5.6.4 Vanity at Public Toilets. Provide architectural casework complying with AWI Section 400, Custom Grade cabinets with high-pressure decorative laminate finish meeting NEMA LD3 standards. Horizontal laminate: nominal .050" thick; vertical laminate: nominal .028" thick. Provide enclosed wall-hung vanity cabinet with countertop, or wall-hung countertop with apron. Exposed piping at accessible lavatories shall be insulated in conformance with ADA/UFAS. Countertop shall be post-formed high-pressure decorative laminate or solid surfacing material. Countertop shall have waterfall front edge and integral coved backsplash with side splash at adjacent walls.

5-5.6.5 Casework in Public Areas of Battalion HQ. Special function architectural casework, including but not limited to Bulletin Boards, Break Room Cabinets and Display Cases, shall comply with AWI Section 400, Premium Grade cabinets with clear finish

hardwood veneer. Work surfaces and counter shall be high-pressure decorative laminate, or solid surfacing material.

5-5.6.6 Other casework. Provide architectural casework complying with AWI Section 400, Custom Grade cabinets with high-pressure decorative laminate finish meeting NEMA LD3 standards. Horizontal laminate: nominal .050" thick; vertical laminate: nominal .028" thick. Door and drawer edges shall be heavy-duty 3 mm extruded polyvinyl chloride with self-locking serrated tongue. Work surfaces and counter shall be high-pressure decorative laminate, or solid surfacing material.

5-5.7 Window Treatments. Provide horizontal aluminum mini-blinds at all exterior windows, except windows and storefront in corridors and lobbies. Blinds shall have 25 mm wide x 0.2 mm thick slats with anti-static, anti-microbial polyester baked enamel finish. Provide heavy duty 25 mm x 38 mm steel headrail, and tubular steel bottom rail finished to match slats.

5-5.8 Window Sills. Sills at living units (room modules) shall be solid surface material. Sills at all other locations shall be solid surface, hardwood or plastic laminate. Gypsum board sills are prohibited.

5-5.9 Interior Signage. Comply with requirements of ADAAG and UFAS for sign locations, text size and contrast. Include the use of Braille text on signage. Reference details on Plate A702, Attachment 7 for examples of interior signage. Provide interior room identification signage for the following spaces and functions:

5-5.9.1 UEPH

- Room number/occupant name signs at each room module entrance door
- Room I.D. and number signs at all building service rooms, storage rooms, stairs and administrative spaces. Include pictograms as required by code and/or ADAAG.
- Directional Signage shall be provided as necessary for wayfinding throughout the building.

5-5.9.2 SCB (if provided as separate building)

- Room I.D. and number signs at all rooms.
- Directional Signage shall be provided as necessary for wayfinding throughout the building.

5-5.9.3 COF's

- Room I.D. and number signs at all rooms.
- Directional Signage shall be provided as necessary for wayfinding throughout the building.

5-5.9.4 BN HQ and BN GA

- Room I.D. and number signs at all rooms.
- Directional Signage shall be provided as necessary for wayfinding throughout the building.

5-5.9.5 Lawnmower Storage Building: No interior signage is required for this building.

5-5.10 Elevators. The offeror shall provide the services of an elevator inspector employed by an independent testing company to inspect the elevator, witness the final testing, and certify elevator. The inspector shall meet all qualification requirements of ASME QEI-1 and shall be certified in accordance with ASME QEI-1. The inspector shall be licensed to perform elevator inspections in the State of Washington. The offeror shall provide an elevator certificate signed by the inspector for each elevator. Elevators shall have State of Washington certification. The certificate shall be provided to the Contracting Officer within 30 days of the completion of testing.

5-6 PHYSICAL SECURITY REQUIREMENTS.

5-6.1 Anti Terrorism / Force Protection. Comply with the minimum construction standards of UFC 4 – 010 – 01, Department of Defense Antiterrorism Standards for Buildings (ASB). Offerors are strongly encouraged to review the entire ASB, see Attachment 12. Risk and threat assessment performed by Fort Lewis indicates that only the minimum level of protection as described by the ASB is required. For the purposes of antiterrorism/force protection design, North Fort Lewis is within a “Controlled Perimeter”. As threat levels are an evolving issue, the contractor shall continue to review all appropriate design considerations with the Government during the course of the design process.

5-6.1.1 ASB Building Types. A central concept of the ASB is the classification of building type as “Troop Billeting”, “Primary Gathering” or “Inhabited”. This type classification drives fundamental facility site setback requirements. For the purposes of this project, the building types are classified as follows:

- UEPH buildings: troop billeting
- SCB's incorporated into UEPH: troop billeting;
- SCB's in a separate building, with assembly areas for more than 50 personnel: primary gathering
- SCB's in a separate building, without assembly areas, or assembly areas for less than 50 personnel: inhabited buildings
- COFs: inhabited building
- Battalion HQ and GA: primary gathering structures
- Lawnmower Storage Buildings: uninhabited building

5-6.1.2 ASB Standards. A total of 23 site planning and design standards are included in Appendix B of the ASB. It is mandatory that the design meet all of these standards. There is no opportunity to obtain a “waiver” or similar exemption from compliance. Careful and comprehensive coordination between design disciplines is essential to the development of a quality solution. In the proposal narrative section discussing design issues associated with the antiterrorism standards provide a clear discussion of the methodology and/or solution to be used for each standard:

- Standard 1 - Minimum Standoff Distances
- Standard 2 – Building Separation
- Standard 3 – Unobstructed Space
- Standard 4 – Drive-up/Drop-Off Areas
- Standard 5 – Access Roads
- Standard 6 – parking Beneath Buildings or on Rooftops
- Standard 7 – Progressive Collapse Avoidance
- Standard 8 – Structural Isolation
- Standard 9 – Building Overhangs

- Standard 10 – Exterior Masonry Walls
- Standard 11 – Windows and Glazed Doors
- Standard 12 – Building Entrance Layout
- Standard 13 – Exterior Doors
- Standard 14 – Mailrooms
- Standard 15 – Roof Access
- Standard 16 – Overhead Mounted Architectural Features
- Standard 17 – Air Intakes
- Standard 18 – Mailroom Ventilation
- Standard 19 – Emergency Air Distribution Shutoff
- Standard 20 – Utility Distribution and Installation
- Standard 21 – Equipment Bracing
- Standard 22 – Under Building Access
- Standard 23 – Mass Notification

5-6.1.3 **ASB Recommendations.** There are a total of 16 recommended site planning and design measures listed in Appendix C of the ASB. Incorporation of these recommendations in the design, as they apply to the specific requirements of this project, are encouraged but optional.

5-6.1.4 **Standoff Distances.** Offerors are strongly cautioned to use care in coordinating the design and siting of all facilities with respect to standoff distances to roads and parking areas. Failure to maintain the minimum standoff distances mandates additional structural analysis of a building to verify adequate performance in response to blast effects. Any blast resistant design analysis must be performed by a structural engineer with demonstrated experience in this type of analysis. Potentially, proximity to roads or parking can require the hardening of building architectural and/or structural features to blast effects.

5-6.1.5 **Critical Facilities.** None of the facilities in this project are considered “critical” per ASB definition.

5-6.2 **Arms Vaults at Company Operations Facilities.** Each company shall be provided with its’ own arms vault (2 vaults per COF duplex). Unless more stringent construction features are required by life safety or building codes, minimum construction requirements shall be as follows:

5-6.2.1 **Floor.** 150 mm slab on grade; reinforced with minimum 152 mm x 152 mm MW 25.8 x MW 25.8 welded wire fabric, on vapor barrier, on 150 mm deep porous fill.

5-6.2.2 **Walls.** 210 mm thick cast-in-place concrete reinforced with 15m bars at 150 mm on center, each way, each face.

5-6.2.3 **Ceiling.** 210 mm thick cast-in-place concrete reinforced with 15m bars at 150 mm on center, each way, each face.

5-6.2.4 **Door and Frame.** Class 5 vault door and frame complying with Federal Specification AA-D-00600C. Locks shall be Underwriters Laboratory listed Group 1 or 1R combination lock. Provide metal ramp type threshold. Provide wire mesh, dutch door style daygate with shelf for issuing arms and ammo. Daygate shall have lock operated from outside by key, and from inside by handle. Vault door shall be on corridor side of opening and swing out,

daygate shall be on interior (vault) side of opening and swing in. Comply with egress requirements of applicable codes.

5-6.2.5 Penetrations. Penetrations through any part of the vault shall be minimized. All openings or penetrations in Vault floor, walls or ceiling greater than 0.062 m² shall be protected with welded steel rod-and-bar grid weighing 39.6 kg/m², consisting of 25.4 mm x 4.8 mm vertical bearing bars at 25 mm on center, and 8 mm diameter horizontal rods at 50 mm on center; or equivalent protection.

5-6.2.6 Arms Rack Anchor Rings. Provide 10 mm diameter stainless steel bar bent into U-shape (25 mm inside radius) with 50 mm long 90-degree returns at ends of horizontal legs. Overall length of legs shall be 126 mm; embed 76 mm of horizontal legs (open end) in concrete such that 50 mm of U-shaped end will protrude from wall to provide anchorage for GFGI arms racks. Orient the projecting U-shape vertically, so that centerline of the U is 1200 mm above the floor slab. Provide anchor rings at 900 mm on center along all walls inside the Arms Vault. Verify all dimensions with user during design to confirm compatibility with user selected arms rack configuration for various weapon combinations.

5-6.3 Secured Documents Vaults at Battalion HQs. Provide 5-sided (walls and ceiling) modular vault attached to building floor system. Vault shall conform to Class M (15 minute working time) requirements of UL 608 Standards for Modular Vault Panels. Vault shall be interfaced with building HVAC, fire protection, and electrical systems. Provide Class 5 vault door and frame complying with Federal Specification AA-D-00600C. Lock shall be Style K, key change combination lock. Provide metal ramp type threshold. Provide wire mesh daygate with lock operated from outside by key, and from inside by handle. Vault door shall be on adjacent room) side of opening and swing out, daygate shall be on interior (vault) side of opening and swing in. Comply with egress requirements of applicable codes.

5-6.3.1 Penetrations. Penetrations shall be minimized. All openings or penetrations in Vault floor, walls or ceiling greater than 0.062 m² shall be protected with welded steel rod-and-bar grid weighing 39.6 kg/m², consisting of 25.4 mm x 4.8 mm vertical bearing bars at 25 mm on center, and 8 mm diameter horizontal rods at 50 mm on center; or equivalent protection.

5-6.3.2 SIPRNET. Provide conduit pathway and outlet box for one SIPRNET connection per document vault.

5.6.4 Floor Anchors for GFGI Security Safes. Provide 10 mm diameter stainless steel bar bent into U-shape (25 mm inside radius) with 50 mm long 90-degree returns at ends of vertical legs. Overall height shall be 130 mm; embed 76 mm of vertical legs (open end) in concrete floor slab; 50 mm of U-shaped end will protrude above slab to provide anchorage for GFGI security safe.

CHAPTER 6

STRUCTURAL DESIGN

6-1 **GENERAL.** General: The structural criteria established herein shall be used for structural loading, design and installation of all structural systems and foundations, including manufacturing, erection, supervision, testing, and quality assurance of the completed installation of the buildings. All structural calculations shall be checked and initialed as such by a registered engineer other than the original design engineer. Construction Documents (drawings and specifications) shall be sealed and signed by a Professional Engineer registered and licensed to perform work in the jurisdiction.

6-2 **STRUCTURAL WORK.** The structural work generally consists of, but is not limited to, design and construction of:

6-2.1 Building Foundations. Spread footings, piles, drilled piers or others as required by the geotechnical investigation.

6-2.2 Ground floor slab systems. Slab on grade, pile supported or framed over crawl space as recommended by the geotechnical investigation.

6-2.3 Load Bearing Walls, including masonry or concrete acting as primary vertical load carrying members and/or shear walls. The use of wood or cold-formed steel construction in a stud-type bearing wall application is prohibited. The use of non-bearing cold-formed steel framing for the lateral support of exterior wall systems is acceptable.

6-2.4 Vertical Framing Members, including steel or concrete columns, or masonry pilasters.

6-2.5 Horizontal Framing Members, including roof and floor systems. The use of wood or cold-formed steel construction is prohibited in Horizontal Framing of floor systems. The use of wood construction is prohibited in Horizontal Framing (including rafters and trusses) of roof systems.

6-2.6 Interconnection Details, including all fastening requirements.

6-2.7 Special Conditions, such as expansion, construction, and control joints, and changes in floor levels.

6-2.8 Attachment provisions for architectural, mechanical, and electrical elements.

6-2.9 Site structures and foundations.

6-3 **DESIGN CRITERIA.** All structural loads (including dead, live, earth, snow, wind, and seismic loads) and design shall be in accordance with the International Building Code (IBC) and all codes referenced therein, except as modified by Unified Facilities Criteria (UFC) 1-200-01, dated 31 July 2002 (available at http://65.204.17.188/report/doc_ufc.html).

6-3.1 Minimum Live Load Requirements:

UEPH Floor	3 kPa (60 psf)
Corridors	4 kPa (80 psf)
Stairwells	5 kPa (100 psf)
Roof	1 kPa (20 psf)
Ground Snow Load	1.5 kPa (30 psf)

6-3.2 All other building live loads shall be in accordance with the International Building Code (IBC).

6-4 **SELECTION OF STRUCTURAL SYSTEMS.** The structural systems shall conform to all applicable criteria and guidance as well as industry standards and commonly accepted methods of practice. Consider logical alternative foundations and framing methods when selecting an appropriate structural system. The following elements shall be evaluated and addressed:

6-4.1 Total Life Cycle cost effectiveness of the system.

6-4.2 Constructability.

6-4.3 Experience level of local contractors and labor force.

6-4.4 Availability and use of local materials.

6-4.5 Sustainable Design.

6-5 SPECIAL REQUIREMENTS.

6-5.1 **AISC Certification requirements:** All fabrication of structural steel shall be accomplished by an AISC certified Category I fabricating plant.

6-5.2 **Anti-terrorism Force Protection Systems:** Designs shall conform to United Facilities Criteria (UFC) 4-010-01 DOD Minimum Antiterrorism Standards for Buildings, latest edition. Offerors are cautioned to read the A/T structural requirements carefully with consideration of their specific applicability to this project. In particular, review the requirements for window construction and the analysis requirements for progressive collapse prevention. Further clarification of the analysis requirements for progressive collapse prevention is provided in Attachment 10, 'Progress Collapse Analysis Guidelines'.

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CHAPTER 7

THERMAL PERFORMANCE

7-1 THERMAL CHARACTERISTICS. Building construction shall conform to the current version of ASHRAE 90.1. All buildings shall be classified as non-residential. R and U values shall be calculated in accordance with ASHRAE methods.

7-2 THERMAL INSULATION.

7-2.1 Characteristics. Thermal insulation shall have a flame-spread rating of 25 or less and a smoke-development rating of 50 or less, exclusive of the vapor barrier, when tested in accordance with ASTM E84. A vapor barrier shall be provided on the warm-in-winter side of exterior wall and ceiling insulation. Vapor barrier shall have a maximum perm rating of 0.5. Polyurethane is allowed as an insulation material for slabs and outside concrete or unit masonry walls. It is prohibited as an injected insulation material in walls or floor cavities or within the building envelope.

7-3 Humid area design. Ft Lewis does not fall within the humid climate zone and therefore, humid design is not applicable for this project.

7-4 INFILTRATION. To limit air infiltration, buildings will be sealed with an air infiltration barrier, installed in accordance with the manufacturer's recommendations. The building envelope shall be caulked, gasketed, weatherstripped or otherwise sealed: around window and door frames, between wall cavities and frames, between walls and ceiling and roof, between walls and floors, at access doors and panels, at utility penetrations through walls, floors, and roofs, and at any other exterior envelope joint which may be a source of air leakage. These steps shall constitute tight building construction.

CHAPTER 8

PLUMBING

8-1 DESIGN STANDARDS AND CODES. Plumbing system shall be designed and installed in accordance with the latest edition of the International Plumbing Code (IPC) and the National Standard Plumbing Code. Inspection and testing of the plumbing system shall be performed as prescribed in the International Plumbing Code. Specified materials and equipment shall be standard products of a manufacturer regularly engaged in the manufacture of such products. Specified equipment shall essentially duplicate equipment that has performed satisfactorily at least two years prior to bid opening.

8-1.1 Additional consideration in the technical evaluation will be given to systems which incorporate measures beyond the requirements of this STATEMENT OF WORK which are designed to increase energy conservation, ease of maintenance, or occupant comfort (such as water filtration and purification), higher efficiency water heating systems, higher grade plumbing fixture materials (such as enameled cast iron tubs as opposed to enameled steel), etc.

8-1.2 System design and installation must conform to the following mandatory energy and water conservation criteria: ASHRAE Standard 90.1-2001.

8-2 DESIGN CALCULATIONS.

8-2.1 Hot water heater calculations. Design shall be based on the methods described in the American Society of Plumbing Engineers (ASPE) Volume I, Fundamentals of Plumbing Design and ETL 1110-3-489. Submit calculations for determining storage capacity and recovery rate. Hot water shall be stored at 60 C to reduce the potential for Legionella Pneumophila (Legionnaire's Disease). Include a cross connection with a mixing valve between the hot water and cold water supply lines to limit the temperature of water distributed to plumbing fixtures to 43.3 C .

8-2.2 Piping. Design shall be based on the International Plumbing Code and National Standard Plumbing Code for domestic water, sanitary waste and vent piping. All water piping shall be sized in accordance with methods outlined in these documents, to limit water velocity in the pipe to 2440 mm/sec unless a lower velocity is recommended by the plumbing fixture manufacturer(s). An isometric diagram of the water system shall be included in the design submittal. An isometric diagram of the sanitary sewer system shall be included in the design submittal.

8-3 EQUIPMENT.

8-3.1 Water heaters shall have round, glass-lined tanks, and shall be installed with an integral insulating wrap with a minimum R value of 5. Access shall be provided in the wrap for service and maintenance openings. Storage water heaters that are not equipped with integral heat traps and having vertical pipe risers shall be installed with heat traps directly on both the inlet and outlet. Circulating systems need not have heat traps installed. The water heater relief drain shall be manufacturer approved, and shall be indirectly connected to the building sanitary sewer system. Water heaters shall be sized in accordance with paragraph 8-2.1 for a 32 degrees C rise. Minimum water heater efficiencies shall be in accordance with DOE Buying Energy Efficient Product Recommendations (refer to

www.eren.doe.gov/femp/procurement) and shall be Energy Star or with efficiencies in the upper 25% of what is available. Additional consideration in the technical evaluation will be given to designs that include water heaters which exceed the minimum energy efficiency requirements and which utilize high efficiency, power vented, or sealed combustion water heaters.

8-3.1.1 Gas fired water heater. Gas fired water heaters shall be in accordance with ANSI Z21.10.1, Water Heaters, Gas, Volume I, Storage Type, 22 kW Input or less, and shall be sealed combustion high efficiency type. Units shall be UL listed. Gas fired hot water boilers for the Barracks shall be in accordance with ANSI Z21.13, Gas Fired Hot Water Boilers.

8-3.1.2 Electric water heater. Electric water heaters will not be allowed in this project, except as noted in Paragraph 8-8, Description of Domestic Water Heater System.

8-3.1.3 Pumps. Recirculating pumps shall be inline type and shall be provided whenever hot water piping extends further than 15.24 meters from a tank.

8-3.1.4 All water heaters of over 400 gallon capacity shall be provided with at least a 10 year tank replacement limited warranty.

8-4 **FIXTURES.** The following fixtures will be acceptable for the facilities on this project except where noted otherwise for specific buildings. Provide handicap accessible type as required by Uniform Federal Accessibility Standards (accessible fixtures are not required in UEPH living units). Fixtures shall be water conservation type, in accordance with the International Plumbing Code. Fixtures shall be provided complete with fittings, and chromium- or nickel-plated brass (polished bright or satin surface) trim. All fixtures, fittings, and trim in a project shall be from the same manufacturer and shall have the same finish.

8-4.1 Vitreous china plumbing fixtures shall conform to ANSI A112.19.2, Vitreous China Plumbing Fixtures. Stainless steel fixtures shall be in accordance with ANSI A112.19.3, Stainless Steel Plumbing Fixtures (residential design). Enameled cast iron plumbing fixtures shall comply with ANSI A112.19.1, and enameled steel fixtures shall comply with ANSI A112.19.4.

8-4.2 Exposed traps shall be chromium-plated, copper alloy adjustable-bent tube, 20-gauge brass. Concealed traps do not have to be chromium plated. Plastic (ABS) traps are prohibited.

8-4.3 Faucets shall be single-control type, with seals and seats combined in one replaceable cartridge designed to be interchangeable among lavatories, bathtubs and kitchen sinks, or having replaceable seals and seats removable either as a seat insert or as a part of a replaceable valve unit. Water flow shall be no more than .158 L/s from any faucet.

8-4.4 Shower and bath combination shall be controlled by a diverter valve. Diverter shall be integral with single mixing valves. Baths and shower and bath combinations shall be provided with waste fitting pop-up, concealed with all parts removable and renewable through the overflow and outlet openings in the tub. Showers and shower and bath combinations shall be equipped with a combination valve and flow control device to limit the flow to 0.158 L/s at pressures between 137.9 to 413.7 kPa. Provide access panels (or doors) to allow access to bathtub overflow fittings.

8-4.5 Piping shall be concealed. Individual shutoff or stop valves shall be provided on water supply lines to all plumbing fixtures except bathtubs and showers. Shutoff valves shall be provided for each bathroom group.

8-4.6 Water closets. Water closets shall have regular bowl with inclined tank, close coupled siphon jet, floor outlet with wax gasket, closed-front seat and cover, and an anti-siphon float valve. Water consumption shall be no more than 6 L per complete flushing cycle. Water closet trim shall conform to ANSI A112.19.5, Trim for Water-Closet Bowls, Tanks, and Urinals (Dimensional Standards). Shall be tank type for floor or wall mounted, water saver type and shall meet the requirements of the code.

8-4.7 Urinals. Urinals shall be wall mounted, waterless type and shall meet the requirements of the code.

8-4.8 Lavatories. Lavatories shall be rectangular counter top type, minimum 508 by 457 mm in size or oval minimum 480 by 410 mm in size. Lavatories shall be vitreous china, cast iron rimless type (without rings), or cross-link acrylic molded counter top with integral bowl. Lavatories shall have pop-up drains and shall meet the requirements of the code.

8-4.9 Bathtubs. Bathtubs shall be slip resistant and shall be constructed of enameled cast iron or porcelain enameled formed steel.

8-4.10 Showers. Shower heads shall be adjustable spray type and shall include a non-removable, tamperproof device to limit water flow to 0.16 liters per second when tested in accordance with ASME A112.18.1M.

8-4.11 Kitchen sinks. Kitchen sinks shall be Type 302 stainless steel, 20-gauge minimum, seamless drawn, and sound deadened. Sinks shall be single bowl, self-mounting without mounting rings, complete with cup strainer and plug. Food waste disposers, where provided, shall be in accordance with UL 430 and ASSE 1008, and shall have a minimum motor size of 370 watts. Strainer and plug shall be eliminated where food waste disposers are provided and shall meet the requirements of the code.

8-4.12 Mop sinks. Mop sinks shall be neo-angle, enameled cast iron, acid resistant, floor mounted type conforming to IAPMO Z124.6.

8-4.13 Electric water coolers. Units shall be electric refrigerated type and shall conform to the requirements of ARI 1010 and the Lead Contamination Control Act of 1988.

8-5 **PIPING SYSTEMS.** Piping shall be concealed. Individual shutoff or stop valves shall be provided on water supply lines to all plumbing fixtures except bathtubs and showers. Shutoff valves shall be provided for each bathroom group. In multi-story units, additional consideration shall be given in the technical evaluation to designs which provide separate shutoff valves for each floor or as required to facilitate servicing in the interest of minimizing down time and interruption of service. Provide cathodic protection and pipe joint bonding systems as required.

8-5.1 Gas. The design and installation of natural gas distribution systems and equipment shall be in conformance with manufacturer's recommendations and applicable sections of ASME B31.8 and AGA-01, as well as Puget Sound Energy requirements. A seismic shut-off valve shall be provided downstream of the gas meter. The installation of

interior natural gas distribution systems shall be in conformance with the provisions of NFPA 54 and AGA-01. The use of semi-rigid tubing and flexible connectors for gas equipment and appliances is prohibited, except that the final connections to the dryers shall be made using flexible connectors conforming to ANSI Z21.45, Flexible Connectors of Other Than All Metal Construction for Gas Appliances, not less than 1000 mm long. Provide accessible gas shutoff valve and coupling for each gas equipment item. Comply with UBC or model code seismic requirements. Exposed horizontal piping shall not be installed farther than 150 mm from the nearest parallel wall in laundry areas or areas where clothes hanging could be attempted.

8-5.2 Domestic water piping. Piping and fittings shall be copper tubing. Valves shall be provided at each fixture and piece of equipment, at each toilet and kitchen, and on takeoffs from risers to each floor. Under slab supply piping shall be limited to service entrance only.

8-5.2.1 Copper tubing. Water piping under concrete slabs shall be copper tubing, type K, annealed. Joints under the slabs are prohibited. Copper tubing for interior water piping shall be type K or L hard-drawn copper. Additional consideration in the technical evaluation shall be given to designs using copper types K or L. Fittings for soft copper tubing shall conform to ANSI B16.26, Cast Copper Alloy Fittings for Flared Copper Tubes, and for hard-drawn to ANSI B16.22, Wrought Copper and Copper alloy Solder Joint Pressure Fittings.

8-5.2.2 Chlorinated Polyvinyl Chloride (CPVC) Plastic Pipe. The use of CPVC plastic piping shall be limited to water service for the water closets using reclaimed rainwater. The CPVC piping used for this service shall be clearly identified as "Non-potable water".

8-5.2.3 Soil, waste, vent, and drain. Piping and fittings shall be cast iron, copper or polyvinyl chloride (PVC) plastic pipe. Cleanouts shall be provided as required by the code.

8-6 MISCELLANEOUS ITEMS.

8-6.1 Cleanouts. Cleanouts shall be provided at each change in direction of sanitary sewer lines, at the intervals specified in the National Standard Plumbing Code, at the base of all soil and waste stacks and at the building service entrance. All cleanouts shall be permanently accessible. Ground cleanouts shall be installed in a 305-mm by 305-mm concrete pad, flush with grade. Wall and floor types shall be provided as required by the code. Provide access panels or cover plates in exposed areas.

8-6.2 Hose bibbs. Hose bibbs shall be provided at the front and rear of each building, for each ground level housing unit. Hose bibbs shall be frostproof, and shall be supplied with an integral vacuum breaker. Provide as required by the code.

8-6.3 Wall hydrants. Provide every 45.7 meters along the perimeter of the building.

8-6.4 Backflow preventers. Provide as required by the code and Ft Lewis installation standards..

8-6.5 Washer wall boxes. Clothes Washer Connections at each washer location. Drainage and hot and cold water supply shall be provided for automatic clothes washers. Washer connection, complete with 50-mm drain, 20-mm hose thread supplies shall be provided in standard manufactured recessed wall box with single-face plate. Boxes shall be constructed of plastic or sheet steel. Steel boxes shall have a corrosion-resistant epoxy

enamel finish. Boxes shall be mounted a minimum of 865 mm above the finish floor. Electrical outlets for both washer and dryer shall also be provided.

8-6.6 Trap Primers. Provide trap primer devices for all floor drains except those in latrines in barracks.

8-6.7 Isolation Valves. Provide isolation valves so as to allow for maintenance of portions of the plumbing system without having to shut down the entire building. As a minimum, isolation valves shall be provided at each water hammer arrester, trap primer valve, plumbing fixture group of two or more fixtures, each wing and floor of the building, all equipment, outside hose bibs and hot water circulation piping. Balancing valves are not considered isolation valves.

8-7 **PIPE INSULATION.** Insulation type shall be cellular glass, mineral fiber, flexible elastomeric cellular, or phenolic foam.

8-7.1 Domestic service hot water piping. Minimum pipe insulation performance shall be in accordance with the requirements of the latest edition of ASHRAE/IESNA 90.1.

8-7.2 Domestic service cold water piping shall be insulated with a minimum of 13-mm insulation with vapor jacket.

8-7.3 Roof drain piping. Provide 25-mm thickness insulation on all horizontal piping.

8-8 **DESCRIPTION OF DOMESTIC WATER HEATER SYSTEM**

8-8.1 The Barracks domestic water heating system shall be integrated with and controlled by the building DDC system. Equipment shall be interlocked and controlled to optimize heater efficiency, so that the system as a whole is operating in the most efficient manner. A suggested system is described below; the contractor is allowed to submit a proposal for an alternate system if it improves overall system efficiency over this design.

8-8.2 The domestic hot water system shall consist of one or more high-efficiency gas fired domestic hot water heaters (primary heaters), in parallel, one or more stainless steel storage tanks, in series, and a heater loop domestic hot water (DHW) pump for each hot water heater, as well as a building loop DHW return pump, a small gas fired water heater, and a small electric water heater. Storage tanks shall be sized to contain enough water at 60° C to provide hot water for the morning shower cycle, assuming 7.5 minute showers for every occupant and 2 minutes of lavatory hot water use, and assuming that for shared barracks modules, one shower directly follows the other.

8-8.3 The storage tank(s) shall be set up such that the outlet from the primary heater(s) flows into the first (or only) storage tank through a connection at the top of the tank. Also, there shall be a cold water (CW) connection to the last (or only) storage tank at the bottom of the tank, sized and arranged to provide low velocity entrance and subsequent quiescent flow into the tank. If there are two or more tanks, the bottom of each tank shall have a low velocity CW connection. The connections between tanks shall allow flow in either direction, between the low velocity CW connection on the first tank and the top of the second tank, and from the low velocity CW connection on the second tank and the top of the third tank, etc until the bottom of the last tank is connected to the CW supply as described above. The last (or only) tank shall have an additional connection at the bottom of the tank to allow flow from

the tank to the primary heater(s) via the heater loop DHW pump(s). The first tank shall have an additional connection at the top of the tank to allow flow from the tank to the mixing valve, where hot water from the first tank shall mix with cold water to provide 43.3° C water to the building loop.

8-8.4 The small gas fired water heater shall be located between the outlet in the bottom of the last tank and the heater loop DHW pump(s). The small electric water heater shall be set at 43.3° C, and located on the 43.3° C loop at the outlet of the building loop DHW return pump, with a connection from the outlet of the heater to the building hot water supply line, downstream of the mixing valve.

8-8.5 A schematic for the domestic hot water system can be found in Figure A.

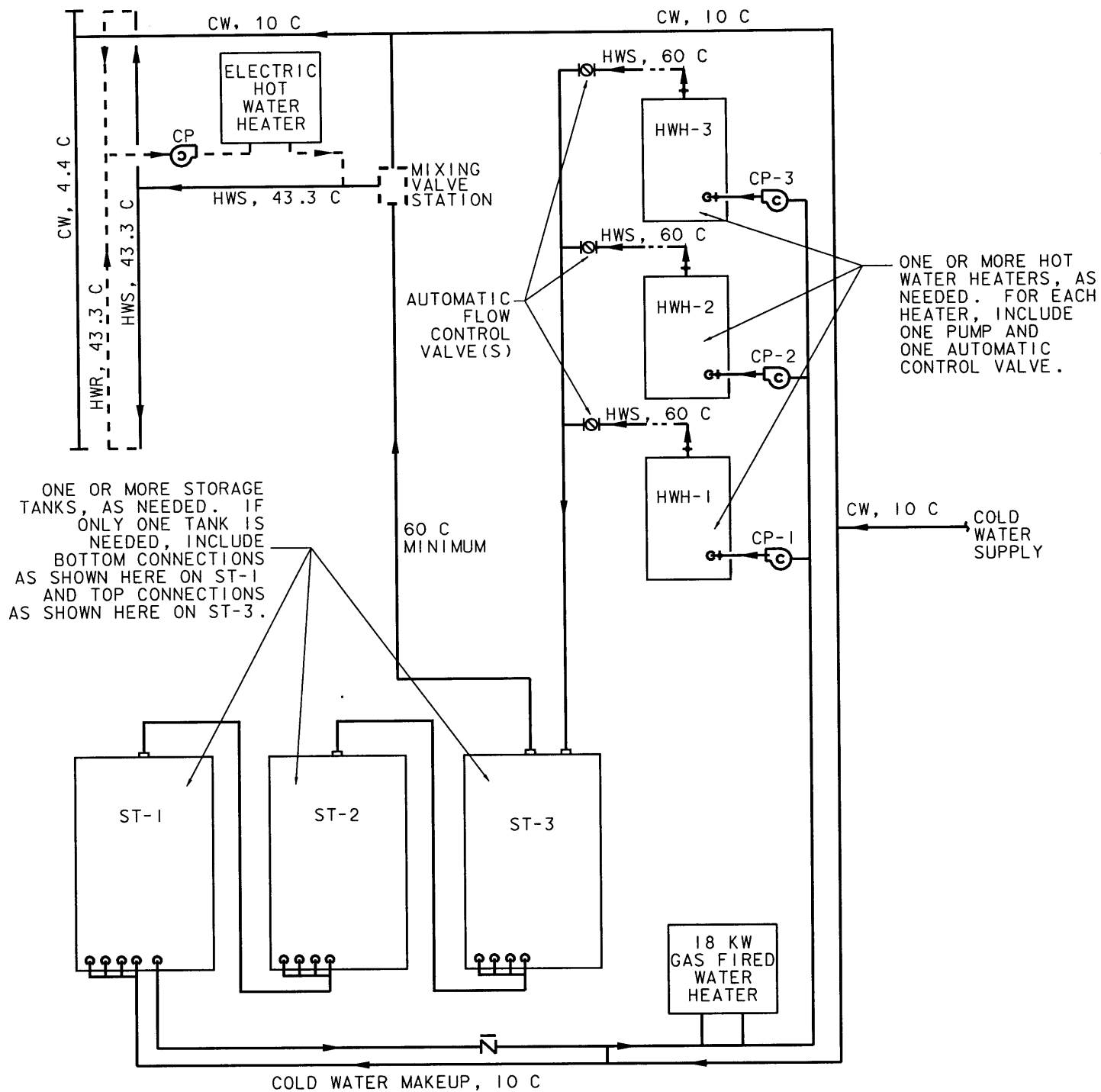
8-8.6 The hot water heaters and storage tanks shall operate as described below:

During morning showers, stored hot water shall be depleted, and cold water shall be directly supplied to the storage tanks to replace the depleted hot water. Hot water shall leave through the connection at the top of the first tank and cold water shall enter at the bottom of the last tank quiescently, so as to prevent mixing and to maintain stratification of hot water at the top of the tank and cold water at the bottom. Cold water will gradually fill the last tank, then the next to last tank, etc. until the first tank is depleted. The first tank should not fill completely with cold water until the peak shower demand has dropped off.

While the hot water is being depleted from the storage tanks, the DHW circulating pump(s) and primary heater(s) shall operate to draw cold water supply through the heater(s), into the top of the first tank. Automatic flow control valves shall limit the flow through the heaters to maintain a heater outlet temperature above 60° C. Once the demand has dropped off, the heater(s) shall continue to operate by drawing water from the bottom of the last tank and delivering hot water to the top of the first tank, until the temperature in (all) the tank(s) has reached 60° C.

Once the return temperature from the last tank has exceeded 60° C, the primary heater(s) shall be shut out and the small gas fired heater shall be energized and shall cycle on and off, to maintain the temperature in the storage tanks. If the demand increases and the small heater can no longer maintain the temperature, the primary heater(s) shall be enabled.

Return hot water from the building loop shall continuously pass through the electric hot water heater, and the heater shall maintain an outlet temperature set point of 43.3° C.



TYPICAL BARRACKS DOMESTIC PLUMBING SCHEMATIC

CHAPTER 9

ELECTRICAL SYSTEMS

9.1 DESIGN STANDARDS AND CODES. The electrical design for all facilities shall be in accordance with the current version of the National Electrical Code.

9.1.1 Facility Energy Conservation Requirements. The entire facility design, including siting, building envelope, plumbing systems, lighting, electrical systems, and HVAC systems form a complete assembly/structure which is in compliance with ASHRAE 90.1-2001.

9.2 DESIGN CALCULATIONS. Provide calculations for the following:

9.2.1 Interior lighting. Provide calculations for each room or area.

9.2.2 Exterior lighting. Provide calculations for all site lighting to include parking areas, walkways, roadways and security.

9.2.3 Load Analysis for each building to include connected and estimated demand. Separate loads by categories such as lighting, receptacles, HVAC, special equipment, etc.

9.2.4 Fault – short circuit calculations for electrical system(s).

9.2.5 Voltage drop – Provide calculations to verify voltage drops. Do not exceed limits as given in the National Electric code (NEC). Additionally, conductors for 20 ampere branch circuits of 120 volts more than 30.5 meters, and of 277 volts more than 70 meters, shall not be smaller than No. 10 AWG.

9.2.6 Coordination – provide data to verify proper protection and coordination is provided for the equipment/system(s).

9.3 MATERIALS AND EQUIPMENT. All materials and equipment shall be the standard catalogued products of manufacturers regularly engaged in the production of such equipment and material, and shall be the manufacturer's latest design. All equipment and material shall conform to the requirements of American National Standards Institute (ANSI), American Society of Testing and Materials (ASTM), National Electrical Manufacturer's Association (NEMA), National Fire Protection Association (NFPA) or other national trade association as applicable. Where standards exist, materials and equipment shall bear the label and be listed by Underwriters Laboratories, Inc. (UL) or other recognized testing organization.

9.3.1 Space requirements. Electrical space shall be provided for all electrical equipment. Space shall provide clearances and working areas as required by codes. Coordinate location to consider factors such as ease of maintenance, vicinity to loads being served and accessibility.

9.3.2 Wiring.

9.3.2.1 Interior - Conductors shall be copper and shall be run in conduit. Conduit shall be installed above the ceiling and in the walls. Conduit may be electrical metallic tubing, except rigid or intermediate metal conduit shall be used where exposed and subject to damage.

Conductor insulation is type TW (60° C) for conductors No. 1 AWG and smaller, and THW (75°C) for conductors No. 1/0 AWG and larger. For circuit design, conductor sizes shall be based on ampacities of TW and THW. The Contractor may use THWN and THHN for conductor installation. Feeders serving computer loads shall be provided with an isolated ground wire and a separate neutral conductor. Use solid copper wire for sizes No. 12 AWG and smaller diameter, and Class B, stranded copper wire for sizes No. 10 AWG and larger diameter.

9.3.2.2 Exterior - Wiring consists of insulated conductors installed in ducts. Conductor insulation type USE shall be used for low voltage circuits and service entrance. Insulation for medium voltage circuits shall be ethylene propylene rubber, as permitted for "long life" projects. Also, medium voltage circuits shall have drain wire insulation shielding. Conductors are copper. Secondary conductors for building electric service shall be installed underground in concrete-encased Schedule 40 PVC ductbank and rigid galvanized steel conduit encased in concrete under building footings (1.5 meters each side) and will terminate in a main distribution switchboard located in the Electrical Room. A minimum of one (1) spare conduit with pull wire shall be provided in the secondary ductbank. Ducts run elsewhere will be direct buried plastic; except concrete encasement will be used under traffic areas. All medium voltage conductors shall be in concrete encased ducts.

9.3.3 Motors. Motors shall be high energy efficient type. Motors rated one-half horsepower and larger shall be three phase. Motors smaller than one-half horsepower shall be single phase. Motor starters for mechanical and special equipment will be furnished as an integral part of the mechanical or special systems.

9.3.3.1 Motor Efficiencies. Minimum motor efficiencies shall be either Energy Star or in accordance with DOE Buying Energy Efficient Products Recommendations (refer to www.eren.doe.gov/femp/procurement for recommended efficiencies). Applications which require definite purpose, special purpose, special frame, or special mounted polyphase induction motors are excluded from these efficiency requirements. Motors provided as an integral part of motor driven equipment are excluded from this requirement if a minimum seasonal or overall efficiency requirement is indicated for that equipment by the provisions of another section.

9.3.4 Switchboard/panelboard. Dead-front construction, NEMA PB1 and UL 67. The main service entrance equipment shall be provided with separate sections for cable pull, main and metering, and distribution. The distribution system shall be a fully rated, selectively coordinated type system. The entrance equipment system shall be designed with 10 to 20 percent spare capacity and space to accommodate future expansion. Panelboards and switchboards shall have copper busses. Panels feeding computer loads shall be provided with an isolated ground bus and 200 percent size neutral bus. 10 percent spare breakers and 10 percent space will be provided in all panels. Space is defined as bussing provisions for future breakers.

9.4 LIGHTING.

9.4.1 Interior. Lighting shall conform to Illumination Engineering Society (IES) recommended levels and in general shall be energy efficient fluorescent with electronic ballast. Lighting in occupied areas shall be color corrected with a Color Rendering Index (CRI) of 85 or better. For energy conservation dual switch, automatic dimming, or occupancy sensors shall be

considered. Light fixtures shall be located where possible to be maintainable with a 1.8m (6-foot) stepladder. Fluorescent lamps shall not exceed 1200mm(4 feet) in length.

9.4.2 Exterior. Site and area lighting shall be high intensity discharge (HID). Exterior walkways shall be illuminated using high-pressure sodium (HPS) lamps in bollards. The walkway illumination level shall be 5 lux (0.5 FC), average, with an average-to-minimum uniformity ratio of 5:1. The walkway lighting shall not flood the site with illumination. Parking areas shall be illuminated using high-pressure sodium lamps in the architectural "shoebox" style fixtures on 10 meter concrete, round, tapered poles. The parking area illumination level shall be 5 lux (0.5 FC), average, with an average-to-minimum uniformity ratio of 4:1. All measurements shall be taken at the pavement.

Exterior lighting shall be controlled by a combination of individual photocells, contactors and H-O-A switches. Place photocells on building to be accessible from a 2.4m (8-foot) ladder.

9.4.3 Emergency Lighting. Provide emergency source for egress/exit lighting IAW Fort Lewis Design Standards. Emergency power for exit and means of egress lighting shall be provided from single source such as lighting inverter or generator that meets the requirements of NFPA 101, Life Safety Code, and Section 5-9. Battery systems shall incorporate maintenance free lead acid or lead calcium batteries. Battery operated emergency lighting equipment shall be self-testing / self-diagnostic that automatically performs a minimum 30 second test and diagnostic routine at least every 30 days and indicates failures and alarms. Status, test, and alarm information shall be stored in memory and retrievable from unit display. Provide provisions for remote alarm indications and condition monitoring. Emergency power sources shall be located in dedicated electrical equipment rooms readily accessible to maintenance personnel independent of building occupants.

9.5 Telecommunications.

Cable shall be Category 6 or higher, such as Category 7, per EIA/TIA 568A, Commercial Building Telecommunications Cabling Standard. For all voice and data wire runs, cable shall be 4 pair, 100 ohm, unshielded twisted pair (UTP), 24 AWG, insulated solid conductor. Four pair for data shall be terminated on rack mounted, 48 port patch panels. Provide a patch cord manager above and below each 48-port patch panel. Four pair for voice shall be terminated on wall mounted 66-type insulation displacement contact (IDC) wiring blocks. Provide jumper management above and below each vertical column of 600 pair of wiring blocks. Voice wiring blocks will be mounted on the same wall with and adjacent to building entrance cables or riser backbone cables. Four pair UTP cable for data shall have a blue jacket, while voice shall have a gray or white jacket.

9.5.1 Communications Rooms. Follow requirements of ANSI/TIA/EIA-569-A for telecommunications closets and equipment rooms. All walls shall be covered with plywood. The plywood shall be painted with two coats of fire retardant paint to match the room color. As a minimum, the main Communications Room shall have one 483mm (19-inch) equipment rack, mounted to the floor. A 20 ampere, 120 volt dedicated receptacle circuit shall be provided at each backboard and to each equipment rack. Communications rooms will be minimally sized according to EIA/TIA 569-A Standards. All communications rooms shall have communications cable tray mounted on the walls around the entire room. The bottom of the cable tray will be 2.13 meters above the finished floor (AFF).

9.5.2 Telecommunication outlet locations. Coordinate outlet locations with furniture arrangement. Administrative areas in the Barracks complex, the Company Operations Facilities, and the Battalion Headquarters shall be provided with multimedia outlets that have two six-pin modular jacks for voice and two eight-pin modular jacks for data. Within office areas and conference rooms, multimedia outlets shall be placed adjacent to receptacles. Each sleeping space within a Barracks' living module shall be provided with two telephone outlets; however, each outlet shall have only one six-pin modular jack. One 27mm conduit shall be routed to each telephone outlet.

9.6 SECURITY SYSTEM(S). An Integrated Commercial Intrusion Detection System, ICIDS II, by MDI Security Systems shall be provided for the arms vaults and secured document rooms within the Company Operations Facilities and the Battalion Headquarters. The system shall consist of balanced magnetic switches at the entrance of each secure room, and passive infrared detectors (PIR), keypad, duress alarm, tamper switches and the Remote Terminal Unit (RTU-195 series) local processor within each secure room. The preprocessing unit (PPU-100) shall be installed in the RSU Building.. The IDS system shall be an extension of the existing system installed at Ft. Lewis. The contractor shall provide and install all the necessary equipment, including fiber optic cables between buildings and the RSU, and system programming to provide a complete and functioning security system. The contractor shall coordinate the programming of the front-end equipment for the security system with the Physical Security Officer. See Section 13721 for additional information on ICIDS requirements.

Closed-circuit security camera surveillance has not been provided.

9.7 SPECIAL SYSTEMS. None

9.8 CABLE TELEVISION (CTV) SYSTEM. Space shall be provided in the Communications rooms for the CTV equipment that will be provided and installed by the CTV vendor. CTV vendor will supply and install all CTV-coaxial service entrance cables. Amplification equipment will be provided and located by the CTV vendor. Provide supporting structures that consist of conduit with pull wires, outlets with blank faceplates, and backboards in closets. Refer to the "Installation Information Infrastructure Architecture (I3A) Design and Implementation Guide". Provide TV outlets in the UEPH buildings per guide requirements, except provide a minimum of two CTV outlets in each Living/Sleeping room. In COF, Battalion HQ, and Brigade HQ provide CTV outlets in the locations designated by the user. Outlets are single run, per vendor requirements, with one 27mm conduit with a pullwire to each outlet. In the barracks, each resident will arrange with the vendor for service.

9.9 RSU BUILDING. Renovations are required in the existing facility to the mechanical equipment and voice/data racks. Coordinate all work within the facility with the DOIM. For the mechanical requirements refer to Chapter 10. Relocate the existing fiber optic racks and cables to the area once occupied by the mechanical equipment. Extend the existing telephone distribution frame into the area once occupied by the fiber optic equipment.

CHAPTER 10

UNIT DESIGN - HEATING AND VENTILATION

10-1 DESIGN STANDARDS AND CODES. The HV design shall be in accordance with ASHRAE Handbooks, 10 CFR Part 434 and the current version of the International Mechanical Code. Air conditioning will not be provided, except for the RSU Building as described. Cooling during the summer shall be accomplished by mechanical ventilation (economizer).

10-1.1 Facility Energy Conservation Requirements. The entire facility design, including siting, building envelope, plumbing systems, lighting, electrical systems, and HV systems form a complete assembly/structure that is in compliance with ASHRAE 90.1-2001.

10-2 DESIGN CALCULATIONS.

10-2.1 Heat loss calculations. Heating loads shall be in accordance with the current edition of the ASHRAE Handbook of Fundamentals. Computer-generated load calculations shall be provided, and shall include complete input and output summaries. Equipment shall be sized to meet the total load determined by computer calculation. Equipment may be oversized to no more than 115 percent of the computer-generated load. Design shall be based on weather data from UFC 3-400-02, Engineering Weather Data; from ASHRAE Handbook of Fundamentals; or from other recognized and authoritative sources of weather data. Room airflow requirements shall be computed based on the individual room load. Minimum space heating and ventilation shall be provided in spaces normally unoccupied, such as bulk storage and equipment rooms.

TABLE 10-1 – WEATHER DATA

Type of Design /Design Information	Metric	
Heating		
Indoor Design Temperature	21 °C	
Unoccupied Space Design Temperature	13 °C	
Outdoor Design Temperature	-4 °C	

Metric data are based on Celsius degree-days to a base of 18° C.

10-2.1.1 Load design criteria –UEPH Facilities (Barracks): The internal loads shown in Table 10-2 shall be included for each space listed. The degree of activity for all people shall be moderately active office work. Lights shall be included for the actual quantity provided. Any additional equipment furnished under this contract shall also be included in the appropriate space.

TABLE 10-2 – INTERNAL LOADS

Space	People	Equipment
Sleeping/Living Room	1	1 PC, 1 TV
Kitchen	0	1 Refrigerator
Bathroom	0	None

10-2.1.2 Load design criteria – Company Operations Facilities. The internal loads shown in Table 10-3 shall be included for each applicable space listed. The degree of activity for all people shall be moderately active office work. Lights shall be included for the actual quantity provided. Any additional equipment furnished under this contract shall also be included in the appropriate space.

TABLE 10-3 – INTERNAL LOADS

Space	People	Equipment
Office	1 / 142 sf	1 PC/ person
Conference Room	1 / 20 sf	1 PC
Lobby	1 / 33 sf	1 Coffee Pot
Activities Room	1 / 20 sf	1 PC
Mail Room	1 / 100 sf	None
TV Lounge/Waiting Room	1 / 20 sf	1 TV
Kitchen	1 / 100 sf	1 KW
Toilet, Janitor Closet	0	None
Corridor/Balcony/Vending	1 / 300 sf	None
Laundry	0	None

10-2.1.3 Load design criteria – Battalion Operations Facilities. The internal loads shown in Table 10-4 shall be included for each space listed. The degree of activity for all people shall be moderately active office work. Lights shall be included for the actual quantity provided. Any additional equipment furnished under this contract shall also be included in the appropriate space.

TABLE 10-4 – INTERNAL LOADS

Space	People	Equipment
Offices	1 / 142 sf	1 PC/person
Conference Room	1 / 20 sf	1 PC
Lobby	1 / 33 sf	Coffee Pot
Classroom	1 / 20 sf	1 PC/person
Toilet, Janitor Closet	0	None
Corridor	1 / 300 sf	None

10-2.2 Ventilation air. Calculations determining minimum outside ventilation air and exhaust shall be provided for each building space. Ventilation rates shall be in accordance with the current edition of the International Mechanical Code and ASHRAE 62. Outside air quantities will be sufficient to meet ventilation requirements and maintain a positive pressure relative to the outdoors in the living/sleeping rooms, interior corridors, offices, conference rooms, lobby and similar occupied areas.

10-2.3 Piping calculations. Calculations shall be provided for pressure drop calculations for all piping systems, including head loss calculations for all pumps.

10-2.4 Duct calculations. Calculations shall be provided for sizing all duct systems, including static pressure drop calculations for all fans. Ductwork layout drawings shall also be provided to indicate all fittings and devices to substantiate calculations.

10-3 **MECHANICAL SYSTEMS.** Space heating for the barracks complex, to include the company and battalion buildings, shall be provided by hot water generators supplying hot water to the heating coils and convectors. Hot water generators and associated components shall be installed in the respective mechanical rooms. The heating systems shall be designed, installed, balanced, and adjusted to distribute heat to all habitable rooms, as well as bathrooms, in proportion to the calculated load requirements of these spaces. UEPH buildings shall be limited to fan coils, or similar units with individual adjustable thermostat and fan switch in each module. Fan coils and similar units for UEPH modules shall not be ceiling mounted or located in the living/sleeping room area; floor mounted units shall be provided for ease of maintenance. Additional consideration in the technical evaluation will be given to systems utilizing energy efficient equipment, additional space in the mechanical room and closets, and other features that contribute to ease of system operation and maintenance. Additional consideration will also be given to designs that provide measures to increase energy conservation or occupant comfort such as division of each unit into more than one conditioning zone for increased control.

10.3.1 Incremental equipment. Fan coil units with hydronic heating shall be provided for each module and shall be installed in the mechanical closets.

10.3.2 Air distribution systems. Heating will be provided by fan coil units installed in the mechanical closets. Fan coil units shall deliver air to each conditioned space. Outside air shall be supplied to each of the fan coil units to satisfy indoor air quality as established by ASHRAE 62.

10-3.3 Hydronic distribution systems. Provide hot water piping system with a standby pump provided for each system pump provided. Hot water will be provided from the hot water generator located in the mechanical room.

10-3.4 Provide unit heaters, fin tube radiators, cabinet heaters or convectors to ancillary spaces such as mechanical, communication, and electrical rooms. Remote spaces shall also be provided with unit heaters or convectors if an economic analysis proves that a ducted air system may not be cost effective.

10-3.5 Central heating equipment. Provide natural gas fired hot water generator. A propane/air mixture with natural gas properties will be used as an alternate fuel source. Ft Lewis desires a single hot water generator unit to reduce the maintenance burden. However, multiple units shall be considered to best match the building heating profile and maximize on boiler operation. Additional consideration in the technical evaluation will be given to a heating system that adequately addresses the use of a single or multiple boiler configuration to best match the load profiles for the building. Perform an economic analysis based on first cost, operating cost and maintenance cost. The hot water generator and the controls shall be provided as a system by a single manufacturer. The burner and controls shall be fully modulating type.

10-3.6 Exhaust systems. Provide central building continuous exhaust systems for the barracks toilet exhausts. Provide a single exhaust fan installed in the attic space of the barracks buildings. Provide individual thermostatically controlled exhaust fans for laundries, mechanical/electrical rooms and other spaces where ventilation only is required. Provide exhaust hoods individually and directly ducted to the exterior for all residential type ranges and cooking surfaces. The range hood exhaust fan by itself will not be adequate to move the air out of the kitchen due to the long duct run. Provide another central variable speed exhaust fan in the attic space which is interlocked with the kitchen exhaust fans. Provide a control system that energizes this attic fan upon activation of any of the range hood fans and increases the fan speed proportionally depending on the number of range hood fans that are activated.

10-3.7 Dehumidification systems. Provide packaged refrigerated type dehumidifiers for the Arms Vaults and TA-50 Storage areas in the Company Operations Facilities. Dehumidifiers shall be capable of removing at least 22 liters of water per day at 60% relative humidity and 26 degrees C.

10-3.8 RSU Building. Remove existing air conditioning system, including ductwork, located in the ESS Room in the RSU Building and provide a new air conditioning system located outside of the ESS Room. Two "Data Aire" floor mounted air conditioning units are presently installed in the ESS Room with two air-cooled condensers located outside in the screened equipment yard. Each unit has approximately 70 kW (20 tons) of cooling capacity. The original design was based on an internal sensible heat load of 51 kW (174 kBTU/hr) from the telephone equipment. The existing system provides a 100% redundant high efficiency computer room type air conditioning system to maintain temperatures in the ESS and Battery Rooms between 23.3 ± 2.8 degrees C (74 ± 5 degrees F) dry bulb and 50 ± 10 percent

relative humidity year round, 24 hours a day. The existing system consists of split package direct expansion computer room air conditioning units with fans, compressors, evaporative coils, hot water reheat coils, humidifiers, controls and alarms located in the ESS Room and matching outdoor condensers with fans and coils, capable of providing both heat and humidity control. The two units operate on a 24 hour alternating primary and standby duty cycle. At any time upon the failure of the system on primary duty, the system on standby duty automatically starts and provides the required environmental control. The air conditioning alarms signal high and low humidity levels at the units and at the telephone switch alarm panel and minor and major (2.2 degrees C (4 degrees F) above the minor alarm high temperature level) alarms at the units and telephone switch alarm panel. The minor alarm causes an automatic switch over to the standby unit and remains on until the cause of the minor alarm is corrected. The major alarm indicates that neither unit can maintain the proper ESS Room temperature. The Battery Room is air conditioned by ductwork from the ESS Room units. The Battery Room air conditioning shall provide a minimum of 70 liters per second (150 CFM) air flow. Because of the North Fort Lewis expansion, additional space is required for telephone equipment where the existing air conditioning units are located. The new air conditioning units are expected to have a capacity of approximately 88 kW (25 tons) of cooling capacity each, assuming an increase in internal heat load of 17.6 kW (60 kBTU/hr). The proposed location of the new equipment is on the southwest side of the RSU Building, adjacent to the screened equipment yard. An extension to the building shall be provided for the equipment or the equipment shall be designed for outdoor use if installed directly outdoors without any protection. Existing system shall not be removed until the new system has been tested and commissioned.

10-4 INCREMENTAL EQUIPMENT. The following equipment will be acceptable for the facilities on this project except where noted otherwise for specific buildings. Minimum equipment efficiencies shall be in accordance with DOE Buying Energy Efficient Products Recommendations (refer to www.eren.doe.gov/femp/procurement for recommended efficiencies) or Energy Star.

10-4.1 Unit heaters. Units shall be horizontal or vertical air discharge types complete with fans, hot water coils, housing and discharge vanes or diffuser.

10-4.2 Fin tube radiation. Units shall be complete with plate fin heating elements and enclosures. Enclosures shall be constructed of sheet steel not less than 20 gauge.

10-4.3 Cabinet heater. Units shall be complete with fans, heating elements and enclosing cabinets. Heating elements shall be constructed of cast iron or of nonferrous material. Cabinets shall be constructed of sheet steel not less than 20 gauge.

10-4.4 Convectors. Units shall be complete with heating elements and enclosing cabinets having bottom recirculating opening, manual control damper and top supply grille. Heating elements shall be constructed of cast iron or of nonferrous alloys. Cabinets shall be constructed of black sheet steel not less than 20 gauge.

10-4.5 Exhaust fans. Fans shall be centrifugal or propeller type, roof or wall mounted, direct or V-belt driven with backward inclined, non-overloading wheel. Motor compartment housing shall be hinged or removable and weatherproof, constructed of heavy gauge aluminum. Fans shall be provided with bird screen, disconnect switch, gravity or motorized dampers. Lubricated bearings shall be provided. Fans shall be tested and rated according to AMCA 210.

10-4.6 In-line fans. Fans shall have centrifugal, backward inclined blades, stationary discharge conversion vanes, internal and external belt guards, and adjustable motor mounts. Fans shall be mounted in a welded tubular casing. Air shall enter and leave the fan axially. Inlets shall be streamlined with conversion vanes to eliminate turbulence and provide smooth discharge airflow. Fan bearings and drive shafts shall be enclosed and isolated from the air stream. Fan bearings shall be sealed against dust and dirt and shall be permanently lubricated, and shall be precision self-aligning ball or roller type. Fans shall be tested and rated according to AMCA 210.

10-4.7 Ceiling exhaust fans. Suspended cabinet-type ceiling exhaust fans shall be centrifugal type, direct-driven. Fans shall have acoustically insulated housing. Integral backdraft damper shall be chatter-proof. The integral face grille shall be of egg-crate design or louver design. Fan motors shall be mounted on vibration isolators. Unit shall be provided with mounting flange for hanging unit from above. Fans shall be U.L. listed.

10-4.8 Range hoods. Kitchen range exhaust fans shall be two-speed, and shall be sized for an exhaust rate of 7.6 (L/s)/m². Maximum allowable noise level shall be 6 sones as installed.

10-4.9 Dryer Vents. A 100 mm diameter dryer vent shall individually and directly discharge to the heat recovery plenum. The vents shall be rigid aluminum with exterior wall cap and backdraft damper. Vent pipes shall be a maximum of 6100 mm long, with no more than three right angle elbows (with minimum radius of 150 mm), and have a maximum vertical run of 3660 mm. Means shall be provided for cleaning entire length of dryer vents. Dryer vents shall not exhaust near entry doors, patio or balconies. Dryer vents shall not run through non-accessible spaces.

10-5 AIR DISTRIBUTION EQUIPMENT. Minimum equipment efficiencies shall be in accordance with DOE Buying Energy Efficient Products Recommendations (refer to www.eren.doe.gov/femp/procurement for recommended efficiencies) or Energy Star.

10-5.1 Air handling units. Units shall include fans, coils, airtight insulated casing, adjustable V-belt drives, belt guards for externally mounted motors, access sections for maintenance, combination sectional filter-mixing box, vibration-isolators, and appurtenances required for required operation. Air handling unit shall have published ratings based on tests performed according to ARI 430. All sections shall be constructed of a minimum 18 gauge galvanized steel, or 18 gauge steel outer casing protected with a corrosion resistant paint finish. Casing shall be designed and constructed with an integral structural steel frame such that exterior panels are non-load bearing. Casings shall be provided with inspection doors, access sections, and access doors. Inspection and access doors shall be insulated, fully gasketed, double-wall type, of a minimum 18 gauge outer and 20 gauge inner panels. Coils shall be fin-and-tube type constructed of seamless copper tubes and aluminum fins mechanically bonded or soldered to the tubes. Coils shall be rated and certified according to ARI 410. Filters shall be listed according to requirements of UL 900. Filters shall be 50 mm

depth, sectional, disposable type of the size indicated and shall have an average efficiency of 25 to 30 percent when tested according to ASHRAE 52.1. Filters shall be UL Class 2. Fans shall be double-inlet, centrifugal type with each fan in a separate scroll. Fan bearings shall be sealed against dust and dirt and shall be precision self-aligning ball or roller type. Bearing life shall be L50 rated at not less than 200,000 hours as defined by AFBMA Std 9 and AFBMA Std 11. Bearings shall be permanently lubricated or lubricated type with lubrication fittings readily accessible at the drive side of the unit.

Rooftop air handling units shall not be used.

10-6 HEATING EQUIPMENT. Minimum equipment efficiencies shall be in accordance with DOE Buying Energy Efficient Products Recommendations (refer to www.eren.doe.gov/femp/procurement for recommended efficiencies) or Energy Star.

10-6.1 Hot water generators (HWG). Hot water generators shall be designed, constructed and equipped in accordance with the ASME Boiler Pressure Vessel Code, Section IV, Heating Boilers. Each boiler shall be self contained, steel, horizontal, 3 pass or greater, wetback scotch marine packaged type complete with all accessories, mounted on a structural steel base . The HWG capacity shall be based on the ratings shown in HYI-01 or as certified by the American Boiler Manufacturers Association, or American Gas Association. HWG shall be designed to burn natural gas. A propane/air mixture with natural gas properties will be used as an alternate fuel source. Each HWG shall comply with Federal, state, and local emission regulations. Burners shall be UL approved, fully modulating, mechanical draft burners with all air necessary for combustion supplied by a blower where the operation is coordinated with the burner. Burners shall be provided complete with gas supply system in conformance with UL 795, ANSI Z21.13 or NFPA 8501. Combustion safety controls and equipment shall be UL or IRI listed and conform to ASME CSD-1. Flame safeguard control shall be Honeywell 7800 series. Hot water generators shall be provided with a water flow interlocking device.

10-7 AIR DISTRIBUTION SYSTEMS. Provide duct systems conforming to the recommendations of the SMACNA Duct Construction Standards including seal class requirements. Fire dampers shall be provided where required by code. Balancing dampers shall be provided at all branch takeoffs and for all supply outlets. Permanent access to dampers shall be provided.

10-7.1 Ductwork. All ductwork including fittings and components shall conform to SMACNA HVAC Duct Construction Standards. Seal class shall be as recommended by SMACNA. Pressure sensitive tape shall not be used as a sealant. Duct board shall not be used.

10-7.2 Supply diffusers and registers. Diffusers shall be located to ensure that the air distribution will completely cover all surfaces of exterior walls with a blanket of conditioned air or may be of a compact design so long as 'dead spots' within the units are avoided. At least one diffuser shall be provided in each habitable room. Diffusers shall be provided with integral opposed blade damper. Diffusers shall be provided with air deflectors as required for proper airflow in the space. Plastic diffusers are prohibited. Core velocity shall be limited to 3 m/sec [600 fpm] maximum, with a maximum pressure drop of 0.82 Pa/m [0.1 inch water]. Airflow from any single diffuser shall be limited to 94.4 L/s [200 cfm] maximum. Ceiling mounted units shall have factory finish to match ceiling color, and be installed with rims tight against ceiling. Sponge-rubber gaskets shall be provided between ceiling or wall and

surface-mounted diffusers for air leakage control. Diffuser boots shall be sealed tight to the wall or ceiling they penetrate using duct mastic or caulking. Suitable trim shall be provided for flush-mounted diffusers. Duct collar connecting the duct to diffuser shall be airtight and shall not interfere with volume controller. Wall supply registers shall be installed at least 150 mm [6 inches] below the ceiling.

10-7.3 Return/exhaust registers and grilles. Grilles shall be fixed horizontal or vertical louver type similar in appearance to the supply diffuser face. Registers shall be provided with integral opposed blade damper. Plastic units are prohibited. Core velocity shall be limited to 2 m/sec [400 fpm] maximum, with a maximum pressure drop of 0.5 Pa/m [0.06 inch water]. Grilles shall be provided with sponge-rubber gasket between flanges and wall or ceiling. Register/grille boots shall be sealed tight to the wall or ceiling they penetrate using duct mastic or caulking. Wall return grilles shall be located at least 150 mm [6 inches] above the floor or below the ceiling.

10-7.4 Flexible duct. Shall be limited to runouts, shall be adequately supported to prevent kinks and shall not exceed 3.2 m [10 feet] in length. Runouts shall be preinsulated, factory fabricated, and conform to NFPA 90 and UL 181.

10-7.5 Fire dampers. Fire dampers shall be located and installed in accordance with NFPA requirements, and shall conform to the requirements of UL 555. Fire dampers shall be automatic operating, and shall be rated for the maximum system velocity and pressure. Fire dampers shall be equipped with a steel sleeve or adequately sized frame installed in such a manner that disruption of the attached ductwork, if any, will not impair the operation of the damper. Dampers shall not reduce the duct or the air transfer opening cross-sectional area. Access doors shall be provided at all fire dampers.

10-7.6 Balancing dampers. Provide in ducts serving each supply, return and exhaust air device.

10-7.7 Access doors. Provide in ductwork and plenums at all air flow measuring devices, automatic dampers, fire dampers, coils, thermostats and other devices requiring service and inspection.

10-8 HYDRONIC DISTRIBUTION SYSTEMS.

10-8.1 Pumps. Provide inline or base-mounted centrifugal pump for each hydronic system provided. Provide flexible connections and pressure gauges on pump inlet and outlet. Provide suction diffusers on pump connections. Provide primary and backup pump for each hydronic system provided.

10-8.2 Air separator. Provide air separator for each closed hydronic system provided.

10-8.3 Expansion. Provide a bladder tank expansion tank for each closed hydronic system provided.

10-8.4 Chemical feed systems. Provide means for chemical treatment for each hydronic system provided. Provide automatic chemical treatment systems for all open water systems. Provide initial treatment and one-year supply of chemicals for each system provided.

10-8.5 Makeup water. Provide backflow preventers and pressure reducing valves on each makeup water system provided. Each hydronic system shall have a separate pressure-reducing valve.

10-9 PIPING SYSTEMS. Piping systems shall be in accordance with the following subparagraphs. Fittings and valves shall be compatible for the piping systems in which installed. Provide dielectric unions where required. Provide flexible connections where necessary to prevent vibrations from transmitting from equipment to the piping system. Expansion loops, expansion joints and offsets shall provide with adequate anchors and guides where required to prevent excessive forces within the piping systems. All piping shall be properly and adequately supported. Pipe supports shall conform to MSS SP-58 and MSS SP-69.

10-9-1 Hot water. Shall be steel piping conforming to ASTM A 53/A 53M, Type E or S, Grade A or B, black steel, schedule 40 or copper tubing conforming to ASTM B 88, ASTM B 88M, Type K or L.

10-10 INSULATION. Pipe and duct insulation shall be in accordance with ASHRAE 90.1. Equipment insulation shall be a minimum of 50 mm [2 inch] thickness or as necessary to prevent the surface temperature from exceeding 60 degrees C [140 degrees F].

10-10.1 Duct insulation. Provide on the exterior of all supply and outside air ducts and plenums and on all return ducts in unconditioned spaces. Exhaust ductwork does not require insulation. Insulation shall be faced with a vapor barrier material having a performance rating not to exceed 1.0 perm. Insulation, vapor barrier, and closure systems shall be non-combustible as defined in NFPA 255, with a flame-spread rating of not more than 25, and a smoke development rating of not more than 50, as defined in ASTM E-84. Where insulated ducts pass through firewalls, fire partitions, above grade floors, and fire rated chase walls, the penetration shall be sealed with fire stopping materials.

10-10.2 Pipe. Provide on all aboveground hot and cold piping systems except PVC condensate drains. Insulation shall form a continuous thermal retarder and shall have a vapor retardant to prevent condensation on cold piping systems. Installation shall be with full-length units of insulation and using a single cut piece to complete a run. Cut pieces or scraps abutting each other shall not be used. Supply the insulation with manufacturers recommended factory-applied jacket except for flexible cellular. Piping exposed to weather shall be insulated and an aluminum jacket or PVC jacket shall be applied. Where insulated pipes pass through firewalls, fire partitions, above grade floors, and fire rated chase walls, the penetration shall be sealed with fire stopping materials.

10-10.2.1 Cold aboveground piping. Insulation for minus 34.5 degrees to plus 15.6 degrees C [minus 30 degrees to plus 60 degrees F] for outdoor, indoor, exposed or concealed applications, shall be as follows:

10-10.2.1.1 Cellular Glass: ASTM C 552, Type II, and Type III.

10-10.2.1.2 Flexible Cellular Insulation: ASTM C 534, Type I or II, with vapor retarder skin on both sides.

10-10.2.1.3 Phenolic Insulation: ASTM C 1126, Type III.

10-10.2.1.4 Polyisocyanurate Insulation: ASTM C 591, Type I.

10-10.2.2 Hot aboveground piping. Insulation for above 15.6 degrees C [60 degrees F] for outdoor, indoor, exposed or concealed applications, shall be as follows:

10-10.2.2.1 Mineral Fiber: ASTM C 547, Types I, II or III.

10-10.2.2.2 Cellular Glass: ASTM C 552, Type II and Type III.

10-10.2.2.3 Flexible Cellular Insulation: ASTM C 534, Type I or II to 93 degrees C [200 degrees F] service.

10-11 **EQUIPMENT.** Provide on all equipment when temperatures are below 16 degrees C [60 degrees F], above 40 degrees C [104 degrees F] or where condensation can occur. Insulation shall be suitable for the temperature encountered. Insulation shall be formed or fabricated to fit the equipment. Removable insulation sections shall be provided to cover parts of equipment that must be opened periodically for maintenance including vessel covers, fasteners, flanges and accessories. Supply the insulation with manufacturer's recommended factory applied jacket.

10-12 **CONTROLS.** Provide a DDC system as a distributed control system. The system shall have standalone interoperable LonMark or LonWorks, or BACnet digital controllers, a communications Network with Network Access Controllers (NAC's) in each facility, capable of serving as a WEB browser server if specified. Provide all devices required, including air compressors, refrigerated dryers, current transducers, transformers, thermostats, sensors, controllers, actuators, control valves, dampers, transmitters, flow meters, etc., to provide a complete and operable system. All thermostats for systems that provide heating shall have a deadband of 2.8 degrees C [5 degrees F]. All equipment and systems shall be automatically controlled and monitored by the control system. The control system shall tie and integrated into the existing UMCS/EMCS system using the Tridium based Jace controllers and Web supervisor software. Control system instructions shall be provided for each system. The instructions shall consist of half-size laminated drawings and shall include the control system schematic, equipment schedule, ladder diagram, sequence of operation, panel arrangement drawings, wiring diagram, and valve and damper schedules.

10-13 **TESTING, ADJUSTING AND BALANCING.** Testing, adjusting and balancing of each system shall be the Contractor's responsibility. Testing and balancing of air and hydronic systems shall be accomplished by a firm certified for testing and balancing by the Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB) or Testing, Adjusting and Balancing Bureau (TABB). Prior to testing, adjusting, and balancing, the Contractor shall verify that the systems have been properly installed and are operating as specified. Testing of individual items of equipment shall be performed by a person authorized to perform such testing and startup by the equipment manufacturer. The contractor shall correct all systems and equipment not found in compliance, and shall be responsible for all labor and materials required for this effort. AABC MN-1, NEBB-01, SMACNA-07 or ASHRAE 111 shall be used as the standard for providing testing of air and water systems. The selected standard shall be used throughout the entire project. All recommendations and suggested practices contained in the selected standard shall be considered mandatory. Instrumentation accuracy shall be in accordance with selected standard.

10-13.1 Piping systems. Each piping system including pipe, valves, fittings and equipment shall be hydrostatically tested and proved tight at a pressure of 1-1/2 times the design working pressure, but not less than 699 kPa [100 psi] for a period of not less than two hours with no appreciable loss in pressure. Piping shall not be insulated until testing is completed and acceptable. Upon completion of installation and prior to startup, each hydronic system shall be balanced. All balancing data, including deficiencies encountered and corrective action taken, shall be recorded. Following final acceptance of certified reports by the Contracting Officer, the setting of all HVAC adjustment devices shall be permanently marked by the Contractor's balancing engineer so that adjustment can be restored if disturbed at any time.

10-13.2 Air systems. (Leakage test is not required for a duct system with static pressure of 125, 250 or 500 Pa) Prior to adjusting and balancing, duct pressure testing of air systems shall be performed on 10 percent of the systems that have been randomly selected by the Contracting Officer. No additional testing will be required if at least 90 percent of the tested systems pass the air leakage test requirements. If less than 90 percent of the tested systems pass the air leakage test, an additional 10 percent of the systems shall be tested. This process shall continue until 90 percent of the total number of tested systems pass. Maximum leakage allowed shall be in accordance with SMACNA Duct Leakage Test Manual. Where specific systems require special or additional procedures for testing, such procedures shall be in accordance with the standard selected. All data, including deficiencies encountered and corrective action taken, shall be recorded. Following final acceptance of certified reports by the Contracting Officer, the setting of all HVAC adjustment devices shall be permanently marked by the Contractor's balancing engineer so that adjustment can be restored if disturbed at any time.

10-13.3 Equipment. Each item of central operating equipment provided, including boilers shall be tested in accordance with the equipment manufacturer's standard testing procedures. A factory representative shall be present for the startup and testing of each item of equipment. A certified report shall be provided for each item of equipment tested.

10-14 **COMMISSIONING.** All HV systems and equipment including controls shall be commissioned in accordance with ASHRAE Guideline 1. The commissioning specification, UFGS 15995A, which the contractor tailors based on the ASHRAE Guideline 1 and actual equipment and components installed, is a detailed description of the scope and objective of the construction, acceptance, and post-acceptance phases of the HVAC commissioning process. The commissioning specification is required to contractually implement the post-design phases of the process. It must be project specific. A separate commissioning review, plan and execution by a commissioning authority independent of the design team shall be provided and performed to obtain a point towards the LEED program. See Chapter 13, Sustainable Design.

10-15 **TRAINING.** The Contractor shall conduct a training course for all HV operating systems and individual items of equipment. The field instructions shall cover all of the items of equipment provided as well as the overall systems. The training period shall consist of a total of 24 hours of normal working time and shall start after the systems are functionally completed and testing, adjusting and balancing have been completed. Factory representatives shall be present to assist in training for every item of operating equipment provided. Contractor shall provide two copies of operation and maintenance instructions for each item of equipment provided. Training shall consist of startup, normal operation and shutdown, as well as demonstrations of routine maintenance operations. The Contracting

Officer shall be notified at least 14 days prior to date of proposed conduction of the training course.

CHAPTER 11

ENERGY CONSERVATION

11-1 PASSIVE SOLAR APPLICATIONS. Passive solar architectural applications shall routinely be considered as a part of all project designs. Unique applications such as attached sun spaces, earth sheltering, mass trombe walls, solar chimneys, solar dehumidifiers, and other innovations may be considered. Operational controls, such as shading and venting mechanisms, to control the amount of heat admitted into the building during the day, reduce the amount of heat escaping from the building at night, and provide for thermal comfort of the occupants, are parts of this system.

11-1.1 South glazing. If used as part of the solar energy system, glazing shall be of the commercially available off-the-shelf type and shall face within 20 degrees of solar south. The glazing shall be architecturally compatible with building design and the environment. It shall face directly into the living space so that the walls, floors, ceiling, and other massive objects can absorb the entering solar energy, and shall have a whole-window U value less than 1.6 square meter-Kelvin (K)/watt [0.28 ft²-degrees F/BTUH].

11-1.2 Storage mass. If thermal performance calculations indicate a need for additional mass (beyond that provided by the building structure) substantiating data will be submitted. The storage mass will be well integrated into the building design. The thermal mass surface area in the space must be a minimum of three times the glazing area. Six to nine times the glazing area is recommended to control temperature swings. The surfaces to absorb solar energy must not be more than 10% covered.

11-1.3 Shading of Glazing. Cooling season shading of glazed surfaces on the east, west and south elevations is required.

11-2 PRE-ENGINEERED ACTIVE SOLAR APPLICATIONS. Pre-engineered active solar applications proposed for domestic water heating shall be evaluated for life-cycle-cost effectiveness using a recognized process design program. Whether site-mounted or unit-mounted, systems must be designed for maximum ease of maintenance and for architectural compatibility with the UEPH complex environment. .

11-3 WIND. Wind power may be considered in regions where determined cost effective. Factors such as average wind speed, available wind power, and wind variability shall be considered when investigating the annual useful energy production potential.

11-4 ENERGY RECOVERY EQUIPMENT.

11-4.1 Plate heat exchangers. Unit shall be a factory fabricated and tested assembly for stationary air-to-air energy recovery by transfer of sensible heat from exhaust air to supply air stream. Heat transfer surface shall be constructed of aluminum. Enclosure shall be fabricated from galvanized steel and shall include maintenance access provisions.

11-4.2 Rotary heat exchangers. Unit shall be a factory fabricated and tested assembly for air-to-air energy recovery by transfer of sensible heat from exhaust air to supply air stream. Device performance shall be according to ASHRAE 84. Exchange media shall

be chemically inert, moisture-resistant, fire-retardant, laminated, nonmetallic material that complies with NFPA 90A. Exhaust and supply streams shall be isolated by seals which are static, field adjustable, and replaceable. Chain drive mechanisms shall be fitted with ratcheting torque limiter or slip-clutch protective device. Enclosure shall be fabricated from galvanized steel and shall include maintenance access provisions.

11-4.3 Heat recovery coils. Coil assembly shall be factory fabricated and tested air-to-liquid-to-air energy recovery system for transfer of sensible heat from exhaust air to supply air stream. System shall deliver an energy transfer effectiveness without cross-contamination with maximum energy recovery at minimum life cycle cost. Components shall be computer optimized for capacity, effectiveness, number of coil fins per inch, number of coil rows, flow rate and frost control. Coils, pumps, controls and piping materials shall conform to Chapter 10 – Heating and Ventilation.

11-4.4 Heat pipe. Device shall be a factory fabricated, assembled and tested, counterflow arrangement, air-to-air heat exchanger for transfer of sensible heat between exhaust and supply streams. Device shall deliver an energy transfer effectiveness without cross-contamination. Heat exchanger tube core shall be seamless aluminum or copper tube with extended surfaces, utilizing wrought aluminum Alloy 3003 or Alloy 5052, temper to suit. Tubes shall be fitted with internal capillary wick, filled with an ASHRAE 15, Group 1 refrigerant working fluid, selected for system design temperature range, and hermetically sealed. Heat exchanger frame shall be constructed of not less than 16 gauge galvanized steel and fitted with intermediate tube supports, and flange connections. Tube end-covers and a partition of galvanized steel to separate exhaust and supply air streams without cross-contamination and in required area ratio shall be provided. A drain pan constructed of welded Type 300 series stainless steel shall be provided. Coil shall be fitted with pleated flexible connectors.

11-5 **REBATES AND INCENTIVES.** Systems and techniques that take advantage of rebates and incentives offered by utilities are preferred and shall be stated by the government and local utility districts.

CHAPTER 12

FIRE PROTECTION

12-1 DESIGN STANDARDS AND CODES. The fire protection design for all facilities shall be in accordance with the current versions of the International Building Code, the National Fire Protection Association (NFPA) standards and codes and UFC 3-600-01.

12-1.1 Fire Protection Engineer. The contractor shall provide the services of a qualified registered fire protection engineer. The fire protection engineer shall be an integral part of the design team and shall be involved in all aspects of the design of the fire protection system.

12-1.2 Fire Protection and Life Safety Analysis. The fire protection engineer shall perform a fire protection and life safety design analysis of the proposed facility design. The analysis shall be submitted with the preliminary design submittal. The analysis shall include type of construction; height and area limitations; classification of occupancy; building separation or exposure protection; specific compliance with NFPA codes, the IBC and UFC 3-600-01; requirements for fire-rated walls, doors, fire dampers, etc.; analysis of automatic suppression systems and protected areas; water supplies; smoke control systems; fire alarm system, including connection to the base-wide system; fire detection system; standpipe systems; fire extinguishers; interior finish ratings; and other pertinent fire protection data. The submittal shall include a life safety floor plan showing occupant loading, occupancy classifications and construction type, egress travel distances, exit capacities, sprinklered areas, fire extinguisher locations, ratings of fire-resistive assemblies, and other data necessary to exhibit compliance with life safety code requirements.

12-2 HYDRANT FLOW DATA.

12-2.1 A preliminary hydraulic analysis performed using recent flow test data indicates that the sprinkler system design for this facility will not require a fire pump and storage tank. Proposed design shall be based on test data as described below.

Flow Data:

Date and Location of Test: 6 inch line at East Drive and D Street

Static Pressure Measured: 78 psi

Residual Pressure of: 60 psi Flowing 2,445 gpm

12-2.2 The contractor shall provide detailed calculations that demonstrate that the systems designed meet the flow demands of the sprinkler systems within the facility and the fire department hose stream requirements from the fire hydrants.

12-3 SPRINKLER SYSTEM.

12-3.1 Wet pipe sprinkler system. The entire building shall be protected by a wet pipe sprinkler system. Sprinkler system shall be designed and installed in accordance with the provisions of UFC 3-600-01 and NFPA 13, Standard for the Installation of Sprinkler Systems. UEPH building four stories or less may be protected by a wet pipe sprinkler system designed and installed in accordance with the provisions of NFPA 13R, except that buildings, which use the sprinkler system to increase allowable floor area based on particular construction type, shall be designed and installed in accordance with the provisions of NFPA 13. Provide hydraulic calculations to support design of the system.

12-3.2 Sprinkler Heads. All sprinkler heads located in finished areas shall be recessed pendant type, unless noted otherwise. Sprinkler heads located in barracks room modules shall be concealed type. Residential sprinklers shall be fast response type.

12-4 BUILDING CONSTRUCTION. Comply with requirements of International Building Code, NFPA 101 Life Safety Code and UFC 3-600-01.

12-4.1 Fire Extinguishers and Cabinets. Provide portable fire extinguishers in accordance with NFPA 10. Provide semi-recessed aluminum fire extinguisher cabinets with clear view panel in public areas, and where indicated in functional and area requirements. Provide fire-rated cabinets in fire-rated wall assemblies.

12-4.2 Interior Wall and Ceiling Finishes. Wall and ceiling finishes and movable partitions shall conform to the requirements of the IBC, NFPA 101, UFC 3-600-01 and the following:

12-4.2.1 Interior finish for exits, exit passageways, sleeping rooms shall be Class A only.

12-4.2.2 Flame spread (FS) and smoke development (SD) shall be tested in accordance with ASTM E84. Tests shall not exceed FS rating of 25 and SD rating of 50 for Class A materials; FS rating of 75 and SD rating of 100 for Class B materials; and FS rating of 200 and SD rating of 200 for Class C materials. Class C materials shall only be permitted in fully sprinklered buildings.

12-4.2.3 Cellular plastics shall not be used as interior wall and ceiling materials.

12-4.2.4 Carpeting and other textile wall coverings shall not be applied as an interior finish.

12.5 FIRE ALARM.

Provide fire alarm and detection system conforming to requirements of NFPA 72 and NFPA 101. Fire alarm system shall be addressable (intelligent) and consist of smoke and/or heat detectors, pull stations, audiovisual devices, control/annunciation panel and tamper and/or flow connection/supervision to the sprinkler system. Mechanical HVAC systems shall be separately zoned and duct detected in accordance with NFPA 90A.

Detection shall be provided for all areas, including above drop ceilings, where the ceiling space is accessible. Detectors shall be photoelectric (installation request, i.e., ionization disposal), smoke or heat. Detection in the barracks living units shall be by photoelectric smoke detector with local alarm. The central core area is sprinkled and is provided with flow

switches; except the mechanical room, which is provided with fixed temperature heat detectors. Combination fixed temperature/rate-of-rise heat detectors with general alarm are provided in areas that do not have sprinklers. In the administrative buildings detection shall be in accordance with NFPA 72, consisting of manual pull stations located at each primary exterior door, and smoke and heat detectors in unoccupied spaces and common spaces. Activation of any manual station or sprinkler shall sound the general alarm. Notification appliances for general alarm are horns with strobe lights; and in addition, audible devices in the living unit smoke detector shall sound with general alarm. The fire alarm control panel shall be located in the main electrical room with a graphic annunciator at the main building entry for the Company Operations Facilities, the Battalion Headquarters, and each Barracks building.

12.5.1 The existing fire alarm reporting system on Ft. Lewis consists of a King Fisher radio transmitter. The fire alarm system shall consist of a fire alarm control panel with battery backup, and a transmitter that is fully compatible with the King Fisher system. The transmitter system shall include a transmitter, associated interface, antenna, antenna discharge unit, antenna mast, and shall transmit both trouble and alarm signals.

CHAPTER 13

SUSTAINABLE DESIGN

13-1 SUSTAINABLE DESIGN GOALS.

13-1.1 The general goals for improving the sustainability of facilities include: (a) use resources efficiently and minimize raw material resource consumption, including energy, water, land and materials, both during the construction process and throughout the life of the facility, (b) maximize resource reuse, while maintaining financial stewardship, (c) move away from fossil fuels towards renewable energy sources, (d) create a healthy and productive work environment for all who use the facility, (e) build facilities of long-term value, and (f) protect and, where appropriate, restore the natural environment.

13-1.2 Fort Lewis Sustainability Vision Statement: "Fort Lewis is committed to supporting a strong national defense, securing the integrity of our national and cultural heritage, conserving our natural resources for tomorrow's generations, while seeking choices that enhance our neighboring communities' ability to have a productive future".

13-1.3 Fort Lewis' 25 year sustainability goals were developed during a three day Installation Sustainability Workshop in February of 2002. These goals are critical shapers of all installation planning, development, management and operation activities. All design and construction projects at Fort Lewis must take up the challenge of meeting these goals. Progress towards the attainment of these goals will be incremental and not easily achieved. Some goals may not have a direct nexus with a project. However, all project teams need to carefully evaluate what can be done within their specific scope of work, budget, schedule and quality restrictions to facilitate the eventual attainment of these goals. The goal statements are:

- a. Reduce traffic congestion and air emissions by 85% by 2025.
- b. Reduce air pollutants from training without a reduction in training activity.
- c. Reduce stationary source air emissions by 85% by 2025.
- d. Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025.
- e. All facilities adhere to the LEED Platinum standard for sustainable facilities by 2025.
- f. Cycle all material use to achieve ZERO net waste by 2025.
- g. Attain healthy, resilient Fort Lewis and regional lands that support training, ecosystem, cultural and economic values by 2025.
- h. Recover all listed and candidate federal species in South Puget Sound Region.
- i. Zero discharge of wastewaters to Puget Sound by 2025.
- j. Reduce Fort Lewis potable water consumption by 75% by 2025.
- k. Fort Lewis contributes no pollutants to groundwater and has remediated all contaminated groundwater by 2025.
- l. Develop an effective regional aquifer and watershed management program by 2012.

13-1.4 An additional goal of Fort Lewis is to provide an environmental “showcase” project that both demonstrates the installations commitment to sustainable design and provides a model of environmentally sensitive construction for the community.

13-2 **PROJECT REQUIREMENTS.** Sustainable design techniques and technology shall be considered and incorporated as they relate to site and building design, construction, and operation. While this project will be evaluated using a specific metric, the use of any type of environmentally sound, and life cycle cost responsible, technology may be proposed. Innovation in process and practice is encouraged. However, it is not the intention of the Government for this project to be a venue for experimentation. Technologies proposed for use must have demonstrated success in previous installations. Techniques, products and systems that conserve energy, improve livability, benefit the environment, conserve resources, promote the “whole building” philosophy and can be justified by life cycle cost analysis (including social costs) as cost effective are strongly encouraged.

13-2.1 Sustainable design is a proposal evaluation factor. The level of incorporation of sustainable design principles will be measured through use of the Leadership in Energy & Environmental Design (LEED) Green Building Rating System™ (GBRS), Version 2.1 (November 2002) available from the U.S. Green Building Council at the following website: <http://www.usgbc.org/LEED/publications.asp>.

13-2.2 Each offeror will complete and submit a separate LEED Project Checklist for each building type with the proposal. The total point score will determine the LEED Sustainable Project Certification Level:

- Certified 26-32 points
- Silver 33-38 points
- Gold 39-51 points
- Platinum 52-69 points

The certification level will be used as a proposal evaluation factor as defined in RFP Section 00100 – Instructions, Conditions and Notices to Firms.

13-2.3 Proposals that do not achieve at least a LEED Silver level for each building type will be considered non-conforming.

13-2.4 Proposals that do not comply with all Prerequisite/Required criteria listed in the LEED documentation will be considered non-conforming. For example: *LEED category Energy & Atmosphere – (Prereq 3) CFC Reduction in HVAC&R Equipment* requires zero use of CFC-based refrigerants in new mechanical systems. Although no credit points are available, the requirement must be met to achieve the minimum certification level.

13-2.5 The Government desires the design and construction of these facilities to occur using a structured, integrated design/build approach to the incorporation of sustainable features. This approach requires a multi-disciplinary process where all project design disciplines, contractors and other stakeholders are collaboratively involved from the start to finish of the design/build effort. Proposals should indicate how integrated design/construction will be managed to produce a salutary effect on sustainable design. Offeror's should support their capabilities with evidence of demonstrated success applying the concepts and principles of an integrated approach.

13-2.6 EPA Comprehensive Procurement Guidelines have been developed for a wide range of designated recycled content products. These products contain materials recovered from the solid waste stream. Federal agencies are required to give first preference to EPA designated products if they are competitively priced, available in a reasonable time frame, and meet performance standards. The intent is to conserve resources and reduce solid waste by developing markets for recycled products and encouraging manufacturers to produce quality recycled content products at competitive prices. Accordingly, the Contractor shall use products that meet or exceed the EPA guideline standards to the maximum practicable extent in the performance of the contract. See <http://www.epa.gov/cpg/products.htm>.

13-2.7 Some LEED categories award potential points (credits) for strategies or decisions that are not within the control of the Offeror. These areas may include installation master planning, site selection, or involving facility users in the programming process. The outline discussion of prerequisite and credit points below indicates those areas where the Offeror will receive points for criteria met by actions of the government. The offer shall include these delegated points in their submitted checklist and narrative discussion.

13-2.8 The Offeror shall not receive points for any LEED criteria that cannot be substantiated by supporting information contained in the proposal.

13-2.9 The proposal narrative shall clearly describe the sustainable design features employed to achieve LEED points. The specific design and/or construction features or activities that will be used by the offeror shall be itemized in a manner that will permit objective verification during the design and construction phases of the project. A lack of clarity or specificity in this narrative description will be considered non-conforming. Design and construction solutions must be fully consistent with the direction given in the LEED Reference Guide.

13-2.10 The selected offeror shall be required to fully execute and perform all design and construction features and activities indicated in the proposal.

13-2.11 The selected offeror shall be required to compile and submit all documentation required by the LEED GBRS and related to design activities as part of the Design Analysis. Documentation of construction related components shall be compiled during the course of construction. Progress status of LEED submittal related activities shall be formally reported by the contractor at 3 month intervals throughout the design and construction process. A composite document with all submittal components in the form of a LEED certification submittal, including letter templates, ready for submittal to USGBC, shall be included as part of the project close out submittals. Any submittal materials required to document actual building performance shall be submitted within 15 months of occupancy.

NOTE: this is a requirement for documentation only. The contractor is not required to submit any documentation to USGBC for certification, nor is there any requirement on the contractor to make payment of any certification application or processing fees to USGBC. Actual submittal for certification will be performed by the installation.

13-2.12 The selected offeror is required to obtain the services of a LEED Accredited Professional to serve as the project coordinator for sustainable design activities. This individual shall be responsible for the preparation/compilation of all documentary materials.

Furthermore, the LEED Accredited Professional must have previously submitted a project to USGBC for certification and successfully obtained at least the “Certified” level for that building.

13-3 LEED GBRS PROJECT SPECIFIC GUIDANCE. The following outline adheres to the sequence and nomenclature of the GBRS v2.1 Project Checklist. While the offeror is generally free to select and accumulate those LEED credit points appropriate and financially accessible to this project, there are some mandatory design directives and prohibitions. This outline provides background specific to the subject project sites and may constrain the range of the offeror’s proposal. Proposals that do not comply with mandatory features or design prohibitions listed herein will be considered non-conforming.

13-3.1 Sustainable Sites

13-3.1.1 Prerequisite 1: Erosion & Sedimentation Control.

13-3.1.2 Credit 1: Site Selection.

Echo Block and Alpha Block supported a “temporary barracks” complex for approximately 50 years and are suitable for redevelopment to a barracks complex such as the FY04 Whole Barracks. The sites are not within 100 feet of any existing wetland.

13-3.1.3 Credit 2: Development Density.

The selected sites for the FY04 Whole Barracks was based on functional adjacencies/relationships and land use compatibility. Two other barracks developments located nearby on North Fort Lewis have similar functions and density as the eventual full development of Echo Block and Alpha Block. An existing commercial district is located within 2 blocks of the barracks, which includes shopette, food establishments, health and dental clinics, gymnasium, athletic fields and Officer’s Club. The Echo Block site uses the existing roads and utilities infrastructure constructed in the FY02 and FY03 Whole Barracks Renewal projects. Infrastructure of utilities downstream or outside the construction limits is sized sufficiently to support this project and does not require upgrade.

Construction on this site continues a planned, high-density redevelopment of the North Fort area. This installation zone was previously developed with a much lower density barracks neighborhood. Planned construction and integrated follow on projects will meet all density goals. In addition, this site is proximate to existing road and utility infrastructure. Construction in these categories is limited to extensions within the site boundaries.

13-3.1.4 Credit 3: Brownfield Redevelopment.

(Not Applicable) The sites to be developed in this project are not environmentally contaminated and are not classified as “brownfields”. No points are available.

13-3.1.5 Credit 4.1: Alternative Transportation, Public Transportation Access

Opportunities for alternative transportation are currently limited at this site. The installation transit system does not serve the North Fort area.

13-3.1.6 Credit 4.2: Alternative Transportation, Bicycle Storage & Changing Rooms

Provision of bicycle storage sufficient to at least meet the LEED requirements is mandatory. Changing and shower facilities in addition to those required by the Statement of Work for the COF and BTN HQ facilities are not required.

13-3.1.7 Credit 4.3: Alternative Transportation, Alternative Fuel Vehicles

Regulations prohibit the purchase of alternative vehicles as part of this project. Facilities are currently more than 3 kilometers from an alternative-fuel refueling station. Development of an alternative fuel refueling station, on either the Alpha or Echo block sites, is prohibited.

13-3.1.8 Credit 4.4: Alternative Transportation, Parking Capacity

13-3.1.9 Credit 5.1: Reduced Site Disturbance, Protect or Restore Open Space

Construction limits are clearly indicated on construction documents. Staging areas or laydown shall be identified on the construction documents. Use areas to be paved as staging areas.

13-3.1.10 Credit 5.2: Reduced Site Disturbance, Development Footprint

13-3.1.11 Credit 6.1: Stormwater Management, Rate and Quantity.

13-3.1.12 Credit 6.2: Stormwater Management, Treatment.

13-3.1.13 Credit 7.1: Landscape & Exterior Design to Reduce Heat Islands, Non-roof

13-3.1.14 Credit 7.2: Landscape & Exterior Design to Reduce Heat Islands, Roof

13-3.1.15 Credit 8: Light Pollution Reduction

13-3.2 Water Efficiency

13-3.2.1 Credit 1.1: Water Efficient landscaping, Reduce by 50%

Achieving the one-point credit for Credit 1.1 is required.

13-3.2.2 Credit 1.2: Water Efficient Landscaping, No Potable Use or No Irrigation.

13-3.2.3 Credit 2: Innovative Wastewater Technologies

13-3.2.4 Credit 3.1: Water Use Reduction, 20% Reduction

13-3.2.5 Credit 3.2: Water Use Reduction, 30% Reduction

13-3.3 Energy & Atmosphere

13-3.3.1 Prerequisite 1: Fundamental Building Systems Commissioning

- 13-3.3.2 Prerequisite 2: Minimum Energy Performance
- 13-3.3.3 Prerequisite 3: CFC Reduction in HVAC&R Equipment
- 13-3.3.4 Credit 1: Optimize Energy Performance
- 13-3.3.5 Credit 2.1: Renewable Energy, 5%
- 13-3.3.6 Credit 2.2: Renewable Energy, 10%
- 13-3.3.7 Credit 2.3: Renewable Energy, 20%
- 13-3.3.8 Credit 3: Additional Commissioning
- 13-3.3.9 Credit 4: Ozone Depletion
- 13-3.3.10 Credit 5: Measurement & Verification
- 13-3.3.11 Credit 6: Green Power

The purchase of a green power contract is not an option for this contract.

13-3.4 **Materials & Resources**

- 13-3.4.1 Prerequisite 1: Storage and Collection of Recyclables

Fort Lewis is implementing an installation recycling program. Recycling collection is required by the Statement of Work at the Lawnmower Storage Building.

- 13-3.4.2 Credit 1.1: Building Reuse, Maintain 75% of Existing Shell

(Not Applicable) There is no opportunity to attain this credit. Existing buildings are not present on either the Alpha Block or Echo Block sites.

- 13-3.4.3 Credit 1.2: Building Reuse, Maintain 100% of Shell

(Not Applicable) There is no opportunity to attain this credit. Existing buildings are not present on either the Alpha Block or Echo Block sites.

- 13-3.4.4 Credit 1.3: Building Reuse, Maintain 100% Shell & 50% Non-Shell

(Not Applicable) There is no opportunity for this credit. Existing buildings are not present on either the Alpha Block or Echo Block sites.

- 13-3.4.5 Credit 2.1: Construction Waste Management, Divert 50%
- 13-3.4.6 Credit 2.2: Construction Waste Management, Divert 75%
- 13-3.4.7 Credit 3.1: Resource Reuse, Specify 5%
- 13-3.4.8 Credit 3.2: Resource Reuse, Specify 10%

- 13-3.4.9 Credit 4.1: Recycled Content, Specify 5%
- 13-3.4.10 Credit 4.2: Recycled Content, Specify 10%
- 13-3.4.11 Credit 5.1: Local/Regional Materials, 20% Manufactured Locally
- 13-3.4.12 Credit 5.2: Local/Regional Materials, 50% Harvested Locally
- 13-3.4.13 Credit 6: Rapidly Renewable Materials
- 13-3.4.14 Credit 7: Certified Wood

13-3.5 Indoor Environmental Quality

- 13-3.5.1 Prerequisite 1: Minimum IAQ Performance
- 13-3.5.2 Prerequisite 2: Environmental Tobacco Smoke Control

Smoking is prohibited in all administrative buildings (COF's and BTN HQ's). Smoking is permitted in UEPH room modules because they are designated as "private" residential areas. However, because the operational practice is to pair smokers in designated smoking room modules, and to maintain smoking room modules only for occupancy by smokers, for this project the room modules may be considered as "designated smoking rooms". Note that all LEED requirements, including negative pressure operation, must still be met.

- 13-3.5.3 Credit 1: Carbon Dioxide (CO₂) Monitoring
- 13-3.5.4 Credit 2: Ventilation Effectiveness
- 13-3.5.5 Credit 3.1: Construction IAQ Management Plan, During Construction
- 13-3.5.6 Credit 3.2: Construction IAQ Management Plan, Before Occupancy
- 13-3.5.7 Credit 4.1: Low-Emitting Materials, Adhesives and Sealants
- 13-3.5.8 Credit 4.2: Low-Emitting Materials, Paints
- 13-3.5.9 Credit 4.3: Low-Emitting Materials, Carpet
- 13-3.5.10 Credit 4.4: Low-Emitting Materials, Composite Wood
- 13-3.5.11 Credit 5: Indoor Chemical & Pollutant Source Control
- 13-3.5.12 Credit 6.1: Controllability of Systems, Perimeter
- 13-3.5.13 Credit 6.2: Controllability of Systems, Non-Perimeter
- 13-3.5.14 Credit 7.1: Thermal Comfort, ASHRAE Compliance

13-3.5.15 Credit 7.2: Thermal Comfort, Permanent Monitoring System

13-3.5.16 Credit 8.1: Daylight & Views, Daylight 75% of Spaces

13-3.5.17 Credit 8.2: Daylight & Views, Views for 90% of Spaces

13-3.6 Innovation & Design Process

13-3.6.1 Credit 1.1: Innovation in Design

13-3.6.2 Credit 1.2: Innovation in Design

13-3.6.3 Credit 1.3: Innovation in Design

13-3.6.4 Credit 1.4: Innovation in Design

13-3.6.5 Credit 2: LEED Accredited Professional

This is a mandatory project requirement. In addition to being accredited, this individual shall have previously compiled documentation for, and submitted a project to, the USGBC for LEED certification.

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LIST OF ATTACHMENTS

- 1 DRAWINGS – SITE PLANS AND VICINITY MAPS
- 2 DRAWINGS – UEPH AND SOLDIER COMMUNITY BUILDING
- 3 DRAWINGS – LARGE COMPANY OPERATIONS FACILITY
- 4 DRAWINGS – LARGE BATTALION HEADQUARTERS BUILDING
- 5 DRAWINGS – LAWNMOWER STORAGE BUILDING
- 6 PROPOSAL DRAWING FORMAT
- 7 SIGNAGE – FACILITY, CONSTRUCTION AND SAFETY SIGNS
- 8 GEOTECHNICAL REPORT
- 9 FORT LEWIS INSTALLATION DESIGN GUIDE
- 10 PROGRESSIVE COLLAPSE ANALYSIS GUIDANCE
- 11 LIST OF RFP DRAWINGS
- 12 FORCE PROTECTION CRITERIA
- 13 UNIFIED FACILITIES CRITERIA (UFC) DESIGN: GENERAL BUILDING
 REQUIREMENTS
- 14 LIST OF PROHIBITED AND ACCEPTABLE PLANTS

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ATTACHMENT 1

DRAWINGS – SITE PLANS AND VICINITY MAPS
(Drawings included separately)

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ATTACHMENT 2

DRAWINGS – UEPH AND SOLDIER COMMUNITY BUILDING
(Drawings included separately)

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ATTACHMENT 2

DRAWINGS – UEPH (BARRACKS AND SOLDIER COMMUNITY BUILDING)

1. PURPOSE OF DRAWINGS.

The inclusion of these drawings with the RFP serves three purposes:

- a. to provide offerors with a visual reference on two fundamentally different, yet equally acceptable, programmatic schemes for the UEPH (FY 02 and FY 03 solutions on Echo Block) – single composite building versus multiple buildings, and
- b. to provide examples of the spatial organization, functional adjacencies and design solutions that were developed in previous projects, and
- c. to provide depictions of the building form and fenestration references to the “Neo-Georgian” architectural style used in previous projects.

As described in the Statement of Work, there are a number of possible permutations in the general scheme of the FY 04 UEPH (Alpha Block) portion of the design. The barracks facility can be a single structure (FY02 Scheme), or multiple buildings (FY 03 Scheme) and the SCB portion can be a portion of a single structure or its components/functions can be fully integrated into the UEPH structure(s). Between these various alternatives there is no organizational preference by the Government.

The use of “Neo-Georgian” as the stylistic motif for residential and administrative facilities at North Fort found its inspiration in the original Garrison buildings constructed in the 1920’s and 1930’s on the Main Post. Designs for the COF and BN HQ and GA facilities to be constructed on Echo block shall reprise the stylistic references used on the FY 02 and FY 03 program buildings to promote a sense of “campus” continuity and unit cohesion. As the UEPH to be developed on Alpha block is the initial structure on that superblock, there is more latitude in the appearance of that facility. However, the basic references to “Neo-Georgian” shall remain. The UEPH design will establish a stylistic palette for Alpha block which will be referenced in succeeding construction projects.

NOTE: These previous UEPH facility drawings are provided as a visual reference tool and are not an extension of the scope of work. The facility requirements identified in the text of the Statement of Work govern the design. Any variations from the SOW contained in these drawings do not modify the scope of work. In particular, note that stand alone soldier community buildings are prohibited. Also note that clothes washers and dryers are required in each room module.

2. DESIGN FREEDOM

The inclusion of these drawings in this RFP is not intended to direct or restrict the creativity of the offeror. Designs proffered by the offerors may present solutions that are radically at variance with previous facilities designed and constructed on North Fort. Solutions that incorporate a high degree of innovation and sustainability while adhering to RFP programmatic requirements and their associated codes, standards and regulations, are actively sought. However, as these facilities are additions to a community that has been developing over the last eight years, successful new designs will respect the context and fabric of the neighborhood.

3. AVAILABILITY OF CADD FILES

The CADD files developed for the construction of UEPH facilities (Barracks and Soldier Community Buildings) during previous projects at North Fort Lewis will not be made available to offerors at any time during the RFP process. Nor will any UEPH CADD files be made available to the successful offeror following award of the contract. All UEPH drawings for use as part of proposal development or

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as required for design and construction shall be created by the offeror/contractor as required elsewhere in this RFP.

ATTACHMENT 3

DRAWINGS – LARGE COMPANY OPERATIONS FACILITY
(Drawings included separately)

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ATTACHMENT 3

DRAWINGS – LARGE COMPANY OPERATIONS FACILITY

1. PURPOSE OF DRAWINGS.

The inclusion of these drawings with the RFP serves three purposes:

- a. to provide offerors with a visual reference of the Large COF design used in the FY 02 construction on Echo Block and incorporating changes introduced in the FY 03 Medium COF, and
- b. to provide examples of the spatial organization, functional adjacencies and design solutions that were developed in previous projects, and
- c. to provide depictions of the building form and fenestration references to the “Neo-Georgian” architectural style used in previous projects.

As described in the Statement of Work, it is the intention of this RFP that the FY 04 COF's blend visually and functionally with their FY 02 and FY 03 predecessors on Echo Block. However, this requirement is not intended to preclude the development of improvements by the offerors. Improvements that increase the level of sustainable design, functionality, aesthetics, operability and maintainability are actively sought.

The use of “Neo-Georgian” as the stylistic motif for residential and administrative facilities at North Fort found its inspiration in the original Garrison buildings constructed in the 1920's and 1930's on the Main Post. Designs for the COF and BTN HQ facilities to be constructed on Echo block shall reprise the stylistic references used on the FY 02/03 buildings to promote a sense of continuity and unit cohesion.

NOTE: These drawings are provided as a visual reference tool and are not an extension of the scope of work. The facility requirements identified in the text of the Statement of Work govern the design. For convenience a table listing net room areas in the referenced FY 02/03 design is included in this Attachment.

2. DESIGN FREEDOM

The inclusion of these drawings in this RFP is not intended to direct or restrict the creativity of the offeror. Designs proffered by the offerors may present solutions that are radically at variance with previous facilities designed and constructed on North Fort. Solutions that incorporate a high degree of innovation and sustainability while adhering to RFP programmatic requirements and their associated codes, standards and regulations, are actively sought. However, as the COF buildings are additions to a community that has been developing over the last eight years, successful new designs will respect the context and fabric of the neighborhood.

3. AVAILABILITY OF CADD FILES

The CADD files developed for the construction of Large and Medium COF's during FY 02 and FY 03 projects at North Fort Lewis will be made available to all offerors selected for Phase 2 of the proposal process. These CADD files were prepared using a mixture of AutoCAD v14, 2000 and Microstation v 8. The Government does not guarantee the format or functionality of any CADD files for the purposes of the offerors. The formatting and graphic structure of any or all files may be inconsistent with the requirements for CADD files described by this RFP for design and construction. Offerors should not assume that CADD files to be provided are suitable for reuse as part of proposal development or for design and construction documentation.

FLOOR/AREAS (1/2 of Duplex plan)		FY 02/03 Design Example		FLOOR/AREAS (1/2 of Duplex plan)		FY 02/03 Design Example	
		SM	SF			SM	SF
FIRST FLOOR				SECOND FLOOR			
	Foyer/Corridor	20.45	220.12		Corridor (all)	32.28	347.46
	Stair (Inside)	9.35	100.64		Waiting	8.04	86.54
	Toilet/Shower	5.21	56.08		Stair (interior)	10.86	116.9
	Janitor's Closet	3.95	42.52		Administration	39.88	429.27
	Equipment	94.59	1,018.17		Administration Closet	1.72	18.51
	Maintenance	98.81	1,063.59		Exec. Officer	8.93	96.12
	Arms Vault	48.96	527.01		Commander	13.61	146.5
	Exterior Storage	2.06	22.17		1st SGT Office	10.29	110.76
	Comm. Storage	23.01	247.68		Training Office	8.63	92.89
	NBC Storage	22.42	241.33		Electrical Closet	1.28	13.78
	Women's Vestibule	3.28	35.31		General Storage	36.97	397.95
	Women's Lockers	14.74	158.66		Telecomm	0	0
	Women's	16.14	173.73		Break (Coffee)	2.11	22.71
	Toilet/Shower	3.4	36.6		TA-50 Gear Lockers	72.17	776.84
	Men's Vestibule	25.51	274.59		Toilet/Shower	5.18	55.76
	Men's Lockers	33.47	360.27		Conference	41.57	447.46
	Men's Toilet/Shower				Conference Closet	1.66	17.87
					Platoon Office 1	7.53	81.05
	First Floor Net Area	425.35	4,578.47		Platoon Office 2	9.91	106.67
	First Floor Gross Area	519.68	5,594.36		Platoon Office 3	8.42	90.63
					Platoon Office 4	8.98	96.66
					Platoon Office 5	9.24	99.46
					Hall	11.4	122.71
					Janitor's Closet	0	0
					AHU Platform (in attic)*	43.39	467.05
					Second Floor Net Area	394.05	4,241.55
					Second Floor Gross Area	409.8	4,411.50
					Telecommunications	11.2	120.56
					Mechanical	37.6	404.73
					Electrical	9.1	97.95
					Total Duplex Net Area	1,696.70	18,264.98
					Total Duplex Gross Area	1,858.96	20,011.70
					1391 Allocation (1 Duplex)	1,860.00	20,022.90

ATTACHMENT 4

DRAWINGS – LARGE BATTALION HEADQUARTERS BUILDING
(Drawings included separately)

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ATTACHMENT 4

DRAWINGS – LARGE BATTALION HEADQUARTERS

1. PURPOSE OF DRAWINGS.

The inclusion of these drawings with the RFP serves three purposes:

- a. to provide offerors with a visual reference of the Large BN HQ design used in the FY 03 construction on Echo Block, and
- b. to provide examples of the spatial organization, functional adjacencies and design solutions that were developed in the FY 03 project, and
- c. to provide depictions of the building form and fenestration references to the “Neo-Georgian” architectural style used in previous projects.

As described in the Statement of Work, it is the intention of this RFP that the FY 04 BN HQ and GA buildings blend visually and functionally with their FY 02 and FY 03 predecessors on Echo Block. However, this requirement is not intended to preclude the development of improvements by the offerors. Improvements that increase the level of sustainable design, functionality, aesthetics, operability and maintainability are actively sought.

The use of “Neo-Georgian” as the stylistic motif for residential and administrative facilities at North Fort found its inspiration in the original Garrison buildings constructed in the 1920’s and 1930’s on the Main Post. Designs for the COF and BTN HQ facilities to be constructed on Echo block shall reprise the stylistic references used on the FY 02/03 buildings to promote a sense of continuity and unit cohesion.

NOTE: These drawings are provided as a visual reference tool and are not an extension of the scope of work. The facility requirements identified in the text of the Statement of Work govern the design. For convenience, a table listing net room areas of the FY 02/03 design is included in this Attachment.

2. DESIGN FREEDOM

The inclusion of these drawings in this RFP is not intended to direct or restrict the creativity of the offeror. Designs proffered by the offerors may present solutions that are radically at variance with previous facilities designed and constructed on North Fort. Solutions that incorporate a high degree of innovation and sustainability while adhering to RFP programmatic requirements and their associated codes, standards and regulations, are actively sought. However, as these facilities are additions to a community that has been developing over the last eight years, successful new designs will respect the context and fabric of the neighborhood.

3. AVAILABILITY OF CADD FILES

The CADD files developed for the construction of a Large BN HQ for the FY 03 project at North Fort Lewis will be made available to all offerors selected for Phase 2 of the proposal process. These CADD files were prepared using a mixture of AutoCAD v14, v2000 and Microstation v8. The Government does not guarantee the format or functionality of any CADD files for the purposes of the offerors. The formatting and graphic structure of any or all files may be inconsistent with the requirements for CADD files described by this RFP for design and construction. Offerors should not assume that CADD files to be provided will be suitable for reuse as part of proposal development or for design and construction documentation. CADD files are not available for the BN GA variant.

	FLOOR/AREAS	FY 03 Design Example			FLOOR/AREAS	FY 03 Design Example	
		SM	SF			SM	SF
	FIRST FLOOR				SECOND FLOOR		
	Classrooms	227.04	2,444.09		Corridor/Lobby	57.33	617.10
	Classroom						
	Vestibule	19.25	207.23		Reception Area	0.00	0.00
	Classroom						
	Closet 1	0.98	10.55		Conference	40.80	439.17
	Classroom						
	Closet 2	1.55	16.69		Conference	1.05	11.30
					Commander's		
	Electrical	2.19	23.58		Office	22.75	244.88
	Closet						
	Women	14.30	153.94		CDR Closet	0.97	10.44
	Shower 1	3.80	40.91		CDR Toilet	3.70	39.83
	Shower 2	3.10	33.37		Cmd Section (S-	49.50	532.82
	Shower 3	3.10	33.37		1) S-1 Officer	0.00	0.00
					Cmd Section		
	Janitor's Closet	2.40	25.84		(coffee)	2.17	23.36
					Cmd Section		
	Men	16.40	176.55		(closet)	0.84	9.04
	Resource						
	Center	34.94	376.13		Executive Officer	16.75	180.30
	Corridor/Lobby	96.19	1,035.49		Comm SGT MAJ	16.62	178.90
	Vestibule A	3.90	41.98		S-2 Section	39.20	421.95
	Vestibule B	5.47	58.88		(Open)		
					S-2 Section		
	Stair 1	12.20	131.33		(Closet)	1.27	13.67
	Stair 2	15.80	170.09		S-2 Officer	17.70	190.52
	Telecommunic				S-2 Offices (2)	0.00	0.00
	ations	11.20	120.57				
	Mechanical	13.50	145.33		Crypto Doc Vault	10.30	110.87
	Electrical	10.50	113.03		S-3 Section	30.86	332.18
	Storage	4.60	49.52		(Open)		
					S-3 Officer	8.95	96.34
	Chaplain	13.00	139.95		S-3 Offices (2)	0.00	0.00
	Assistant				S-3 Section		
	Chaplain	9.45	101.73		(Closet)	0.97	10.44
	S-4 Storage	11.40	122.72		Stair 1	12.20	131.32
	S-4 Section				Stair 2	15.83	170.39
	(Open)	67.65	728.25		Men's Shower	12.08	130.03
	S-4 Officer	9.05	97.42		Janitor's Closet	1.70	18.30
	S-4 Offices (2)	0.00	0.00		Electrical Closet	2.65	28.52

	FLOOR/AREAS	FY 03 Design Example			FLOOR/AREAS	FY 03 Design Example	
		SM	SF			SM	SF
	FIRST FLOOR				SECOND FLOOR		
	Duty Officer Elevator	6.50	69.97		Men	10.30	110.87
	Equipment Mail Sort/MSG Center	4.90	52.75		Mechanical Attic	92.55	996.21
	PAC Section (Open)	24.00	258.36		Storage	7.50	80.73
	PAC Section Closet	74.60	803.07		Telecom Closet	8.65	93.11
	PAC Officer	1.50	16.15				
		8.80	94.73		Second Floor Net Area	485.19	5,223.07
	PAC Offices (2)* example plan shows 1 office	11.20	120.56		Second Floor Gross Area	583.40	6,279.72
					Building Net Area	1,229.65	13,237.18
	First Floor Net Area	744.46	8,014.11		Building Gross Area	1,437.38	15,471.96
	First Floor Gross Area	853.98	9,192.24		1391 Allocation (1 bldg)	na	na

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ATTACHMENT 5

DRAWING – LAWNMOWER STORAGE BUILDING
(Drawings included separately)

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ATTACHMENT 6
PROPOSAL DRAWING FORMAT

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ATTACHMENT 6

PROPOSAL DRAWING FORMAT

1. POLICY.

Drawings shall be prepared in accordance with Section 00100, INSTRUCTION, CONDITIONS AND NOTICES TO FIRMS, SECTION 00810, DESIGN – BUILD CONTRACT PROCEDURES, and the following instructions on graphic format. Drawings shall be prepared using a metric basis with hard metric dimensioning. Drawings produced by converting foot/pound units to soft metric units will be evaluated as non-conforming.

2. DRAFTING.

a. The drawings shall show sufficient detail so that they clearly delineate the proposed construction. Original drawings shall be developed for full size printing on standard size A1 (approximately 594 mm x 841 mm sheets), and in CAD format as defined by the Seattle District Corps of Engineers. The proposal submittal of drawings shall also be in CAD format for A1 standard full size sheets. Drawing plate borders and title block shall be as provided by the Seattle District Corps of Engineers. Offerors are required to provide proposal drawings in full and half-size formats.

b. Provide separate drawing volumes for each building type, except Lawnmower Storage Building shall be combined with UEPH/SCB. All site drawings shall be consolidated in a separate drawing volume.

c. The first or cover sheet shall contain the title and location of the project and the specific facility type. The Drawing Index shall be on a separate plate.

d. The drawing layout will be evaluated with care before the beginning of the drafting. Ample space, without crowding, shall be provided, not only for the required plans and details with all necessary titles, dimensions and notes, but also for incidental information required, such as graphic scales, general and reference notes, schedules, North Arrow, etc.

e. Sheets shall be well ordered and drawn at the scales indicated in Section 00100. Any drawings not specifically listed shall be drawn at a reasonable scale and suitable for reduction. Cluttered and overcrowded layouts shall be avoided.

f. A graphic scale for each of the different scales used on a drawing shall be placed on the particular drawing to the left of the title block. Scale shall be indicated at each plan, elevation, section, and detail, unless all drawings on the same are at the same scale. No scale larger than 1:2 shall be used without prior approval.

g. Sheets devoted to details should have such details reasonably spaced and arranged left to right or top to bottom. Groups of details relating to one particular aspect should be adequately separated from other groups and identified with a title. Sections and details of the design should be numerous enough to show all important design features.

h. Unnecessary details or details of small standard products or items which are adequately covered by specifications and/or catalogs shall not be included on the drawings.

i. Use the discipline designation codes below (consistent with the AEC Drawing Standards) to properly arrange and sequence the plates in each drawing volume. Adequate cross-referencing must be shown to avoid confusion and misunderstanding between disciplines.

3. DRAWING PREPARATION.

a. Preparation for Size Reduction. Since drawings will be reduced, all drawing elements (line widths, spacing, lettering sizes, etc.) shall be created with adequate size and density to be easily legible after reduction.

b. Scales. Carefully plan drawing layout together with suitable scales in advance to properly delineate the project. Similar work for all design disciplines shall, whenever possible, be shown at the same scale on the various drawings involved. It is essential that drawings are legible at half-size, as most proposal reviewers will be performing their evaluations with half-size sets.

c. Lettering. Use single stroke lettering, all capitals. Minimum height of all text shall be 3 mm actual measurement on a full size sheet.

d. Plate Reference. The proposer will reference all drawings within a discipline of work. The divisions designated below will be utilized.

Discipline Designation	Design Discipline
G	Title, Location Map, & General Notes
L	Site Planning, Landscaping Planting and Children's Outdoor Play Areas
C	Civil Engineering
A	Architecture
S	Structural Engineering
M	Mechanical Engineering
F	Fire protection
P	Plumbing
T	Telecommunications
E	Electrical Engineering
B	Geotechnical Engineering

- e. Drawing Designation. Each drawing in the particular division shall be designated by the discipline designation and plate number. Use the plate number system identified in the AEC CADD Standard. This system as listed will be used in establishing sequence of drawings.
- f. Sheet Number. Consecutive sheet numbering shall begin with the cover sheet. Sheet number shall be placed directly below "Plate Number" in the Title Block. Sheets inserted after sheet numbers have been finalized shall be designated with the sheet number of the original sheet preceding it and an alpha from A to Z beginning with A (i.e., sheet 32A follows sheet 32).
- g. Cross Reference. Cross-referencing for sections and details shall be based on the plate reference number.
- h. Symbols and Conventions. Symbols and conventions serve two main purposes. One is to simplify the drawing and improve comprehension; the other is to follow or establish a standard which is easily recognized. Symbols shall be the standards used by the various disciplines.
- i. Legends. Place legends of symbols and material indications on the drawings. Since many symbols are limited to certain design disciplines, use separate symbol legends on the initial sheet of each design discipline. Symbols in the legend shall be at the same scale or slightly larger than used on the drawings.

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ATTACHMENT 7

SIGNAGE – FACILITY SIGNS
(Drawings included separately)

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ATTACHMENT 8
GEOTECHNICAL REPORT

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WHOLE BARRACKS RENEWAL, FY04
NORTH FORT LEWIS, WASHINGTON

PROJECT NO. 44794

FINAL
GEOTECHNICAL REPORT

23 MAY 2003

PREPARED BY

CIVIL/SOILS SECTION, DESIGN BRANCH
SEATTLE DISTRICT, U.S. ARMY CORPS OF ENGINEERS

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CENWS-EC-DB-CS

23 May 2003

Whole Barracks Renewal, FY04
North Fort Lewis, Washington
PN 44794

1. General. This project will include a 300 person barracks (garden apartment style) located centrally on A “Alpha” block. Administrative facilities include three large Company buildings and two large Battalion buildings and are located on E “Echo” block. Other project features include utilities connections, paved parking areas and paved access roads, landscaping, and site improvements. Road improvements include portions of 12th Street and C Street on Alpha block.

2. Foundation Exploration. Subsurface exploration was conducted between 12 February and 18 February 2003. Exploration was conducted by the Seattle District, U.S. Army Corps of Engineers. One hundred twenty-eight exploration holes (03-BH-66 through 105 and 03-BH-108 through 195, holes numbered 106 and 107 were not dug) were dug to depths ranging from 0.9 meters to 3.0 meters using a John Deere backhoe, Model 410E. Exploration logs and locations of exploration are shown on plates B101 through B107 and B108 through B109, respectively. Soils were visually classified according to the “Unified Soil Classification System (ASTM D 2487).”

3. Site Conditions.

a. Regional Geology. The site lies on a broad upland drift plain in the southern part of the Puget Sound Basin. The upland separates the main body of Puget Sound on the west from a complex of old (Pleistocene) ice marginal stream channels on the east. The upland is underlain by deposits from the latest Pleistocene (Vashon) glaciation which ended about 12,000 years ago. The thickness of unlithified Pleistocene sediments beneath the Puget Sound Basin is generally in excess of 305 meters and reaches approximately 610 meters in the vicinity of the site. The low relief upland surface slopes gently westward with maximum elevations decreasing from 213 meters on the east to 92 meters on the west. The central and western portions of the upland are characterized by an extensive series of broad glacial meltwater channels cut about 30 meters into the general upland surface and mantled by a thin veneer of latest outwash gravel (Steilacoom gravel) deposited in braided channels as melting of ice from the upland permitted rapid discharge of glacial Lake Puyallup, on the east, across the upland surface toward the depression of Puget Sound. The gravels in these channels contain an extensive, shallow, unconfined aquifer, manifest in a number of large lakes and peat-filled former lakes. Kettles within these channels attest to the original incorporation of ice blocks within the gravel deposits.

b. Site Geology and Foundation Conditions. The project site is underlain by coarse, glacial outwash sandy gravels in an area characterized by glacial kettles and mounds of

glacial till and outwash. The outwash gravels generally are loose to compact in density, contain a high percentage of cobbles to 305 mm with occasional boulder to 762 mm in diameter, and extend to depths of 6 meters or more. Black organic silty gravel (GM) and silt (OL) up to about 2.7 meters thick has developed on top of the outwash as observed from the subsurface exploration. Ground water was not encountered in any of the subsurface explorations at the dates and locations indicated on the drawings. In general, the unconfined water table is expected to be within 6 meters of the natural ground surface and may fluctuate as much as 1.5 meters during the year.

c. Earthquake History. Reference: Technical , TI 809-04, Seismic Design for Buildings, December 1998. From Table 3-1, Site Classification, based on soil types and shear wave velocities from similar soils on the base, a site classification of C is recommended for design.

d. Environmental History. No visual or olfactory evidence of hazardous materials was observed during the subsurface exploration. If any suspected hazardous material is found during the performance of this job, all work will stop and the Corps of Engineers inspector and the Base Environmental Office will be notified immediately.

4. Recommendations for Foundation Design.

a. Site Preparation. Black organic-rich gravels (GM) and silts (OL) overlie the project site. The capacity of these soils to adequately support the structures and pavements over a long-term period is of concern. The exploration logs indicate that these potentially unsatisfactory soils (GM and OL) range in depth from 150 mm to 2.7 meters below the existing ground surface. The average depth of these unsatisfactory soils (GM and OL) is about 690 mm for the entire site, 545 mm for the buildings and structures, and about 860 mm for the proposed paved areas, see specific exploration logs for detailed information. To minimize the effects of possible long term problems with differential settlement due to organic decomposition, all of the unsatisfactory materials under buildings and structures with footings shall be excavated and replaced with satisfactory fill material. Under new pavement areas except sidewalks without vehicle traffic, the unsatisfactory materials shall be removed up to a maximum depth of 750 mm and replaced with satisfactory fill material. Approximate limits of unsatisfactory materials are shown on exploration logs. For each 300 mm of overexcavated depth below footings, increase footing trench width by 300 mm. Replace excavated material with clean gravels compacted to at least 95 percent of maximum modified Proctor density. Fills shall be placed in 225 mm lifts with maximum particle size of 150 mm; however, occasional cobbles having sizes up to but not exceeding the lift thickness will be permitted provided that there are no pockets, lenses, or concentrations of stone. Where such pockets, lenses, or concentrations of stone exist, they shall be removed and replaced at the contractor's expense.

b. Soil Properties. We recommend the following soil properties for use in design analysis: $\phi = 35$ degrees, cohesion = 0, moist unit weight = 2170 kilograms per cubic meter.

c. Footings and Slab Design. Footings shall be placed a minimum of 450 mm below finished grade for frost protection. Computations based on Terzaghi bearing capacity factors, using the above soil properties, indicate an allowable bearing capacity of slightly more than 192 kilopascals (kPa) for footings at the design frost depth. We therefore recommend that footings be designed for a net allowable bearing capacity of 192 kPa dead load plus live load with one-third overstress allowed for temporary dynamic loads on the compacted gravel or the natural sandy gravel foundation. Except as otherwise specifically approved, slabs-on-grade shall not bear directly on footings or pedestals and shall not be tied to footings or pedestals. A capillary water barrier, consisting of a 150 mm-minimum thickness of free draining granular material, and a vapor barrier shall be provided beneath all interior slabs-on-grade. This will also serve as a cushion where the slabs pass over footings or grade beams.

d. Earth Pressure Coefficients. For gravelly backfill material with assigned angle of internal friction, ϕ , of 35 degrees, theoretical earth pressure coefficients for active (K_a), at rest (K_0), and passive (K_p) conditions are .27, .45, and 3.7, respectively. These coefficients are valid only for frictionless, vertical walls with horizontal backfill. For walls designed for other conditions, appropriate revisions of these coefficients must be made. Wall movements of at least .005H (H = wall height) are required to reduce wall pressures to active condition. Very stiff or internally braced walls for which movements less than .005H are anticipated should be designed for K_0 condition or appropriate braced cut criteria. A relatively large wall movement is required to develop full passive earth pressure. For this reason, $K_p = 2.0$ is recommended for general design use. For static conditions, all walls should have a safety factor of at least 2.0.

e. Underground Utilities. All frost susceptible utility lines shall be placed with top of pipe at least 450 mm below ground surface in open areas for frost protection and 900 mm below ground surface under traffic areas for strength requirements. Alternatively, pipe placed at depths less than 900 mm under traffic areas shall be designed for the anticipated loads, except in no case shall the top of pipe be less than 450 mm below ground surface. In situ earth resistivity measurements taken in similar soils at other areas on the base indicate very high resistivity in excess of 500,000 ohm-cm, which is indicative of soils of unlikely corrosion activity. Materials in this area are generally relatively uniform clean gravels, with the water table below the level of utilities. Corrosion of utilities in this area has reportedly not been a significant problem.

f. Earth Resistivity Measurements and Electrical Grounding System. Due to known high resistivity soil conditions as previously mentioned in paragraph 4.e. above, obtaining lower ground resistance values has been a problem at Fort Lewis. In the past, designers have used electrolytic grounding systems, extensive use of copper conductors, and other such methods at Fort Lewis.

5. Recommended Construction and Drainage Considerations.

a. Grades of at least 1 percent and preferably 5 percent, to promote drainage of water away from the structure, shall be provided around the perimeter of the structure.

b. Runoff from roofs shall be directed away from the structure by downspouts and storm drains or surface channels.

c. Walks and pavements adjacent to the structure shall be positively sloped away from the structure.

d. The site shall be prepared to avoid ponding of water in low areas. Sumps and pumps shall be provided at the bottom of excavations, if necessary, to remove rainwater or surface drainage which has entered the excavation.

6. Recommendations for Pavement Design. Pavements for this facility will accommodate various wheeled vehicles with the largest being a multi-axle trucks. The majority of vehicles using this facility will consist of Privately-Owned Vehicles (POV). All floor slabs inside the buildings shall be Portland cement concrete (PCC). Sidewalks shall be PCC. PCC pavement shall be required for dumpster pads and may be needed for any miscellaneous pads as required.

Note: The pavement design technical manual (TM 5-822-5) is not in a metric format, therefore non-metric units will be used to determine the required pavement thicknesses. The recommended pavement thickness will be in metric units.

a. Asphaltic Concrete Pavement Hardstand and Access Roads for Organizational Vehicles and POV's. The design is based upon the following assumptions:

- (1) Category IV Traffic.
- (2) Class E road
- (3) Subgrade - CBR 30
- (4) Base - CBR 80

From TM 5-822-5 (Table 3-1, Pavement Design Index), a design index of 4 is obtained for a Category IV traffic and Class E road. From Figure 8-1, for a subgrade CBR of 30 and design index of 4, the total pavement section thickness required is 3 inches. The minimum recommended pavement section for a Design Index of 4 (Table 6-1) is 2 inches of AC and 4 inches of base course. The recommended pavement section shall consist of 50 mm of AC pavement and 100 mm inches of base course.

b. Asphaltic Concrete Pavement Parking Area for Privately Owned Vehicles. The design is based upon the following assumptions:

- (1) Category I Traffic
- (2) Class F road

(3) Subgrade - CBR 30

(4) Base - CBR 80

From TM 5-822-5 (Table 3-1, Pavement Design Index), a design index of 1 is obtained for a Category I traffic and Class F road. From Figure 8-1, for a subgrade CBR of 30 and design index of 1, the total pavement section thickness required is 2.1 inches. The minimum AC section shall be 50 mm thick for constructibility. The recommended pavement section shall consist of 50 mm of AC pavement and 100 mm of base course.

c. PCC for Dumpster Pads, Miscellaneous Parking Pads. The design assumptions are as follows:

- (a) Category IVA traffic (> 25% multi-axle trucks).
- (b) Class E pavement
- (c) K, modulus of subgrade reaction of 350 pounds per square inch per inch (p.s.i./in.)
- (d) Subbase - CBR 40
- (e) Base - CBR 80
- (f) fs, flexural strength of concrete, 600 p.s.i. at 28 days age

From TM 5-822-5 (Table 3-1, Pavement Design Index), a design index of 5 is obtained for a Category IVA traffic and Class E road. From Figure 9-1. for a base course thickness of 4 inches, the effective k at the top of the base course is 370 p.s.i./inch. From Figure 12-2 (Design Curves for Plain Concrete Parking and Open Storage Areas), for a flexural strength of 600, an effective k of 370, and a design index of 5, the required PCC thickness is 5.5 inches. The minimum PCC section thickness is 6 inches. The recommended total pavement section shall consist of 150 mm inches of PCC placed on 100 mm of base course.

d. Compaction Requirements. The base course shall be compacted to at least 100 percent of the maximum modified Proctor density. The top 150 mm of the subgrade shall be compacted to at least 90 percent of the maximum modified Proctor density for cohesive materials and 95 percent of the maximum modified Proctor density for cohesionless materials.

e. Portland Cement Concrete Sidewalks. This pavement is designed in accordance with paragraph 12-6, TM 5-822-5. The pavement section shall be 100 mm of PCC on 100 mm of base course. The base course shall be compacted to at least 95 percent of the maximum modified Proctor density. The top 150 mm of the subgrade shall be compacted to 90 percent of the maximum modified Proctor density. Compressive strength shall be 24.1 megapascals (MPa) at 28 days age.

7. Recommendations for Floor Slab Design. The design of the floor slab shall be according to the requirements of TM 5-809-12, "Concrete Floor Slabs on Grade Subjected to Heavy Loads," where applicable.

8. Location of Borrow. Borrow sources are not available on the Fort. The Contractor shall obtain borrow materials from outside the limits of Government-controlled land. Commercial sources of borrow materials are available locally.

9. Disposal Areas. Disposal areas are not available on the Fort. The Contractor shall be responsible for removal and disposal of all materials outside the limits of Government-controlled land.

10. Preparation of Plans and Specifications. The technical manuals referenced below shall also be reviewed for information relative to preparation of plans and specifications.

a. References.

- (1) TM 5-742, Concrete and Masonry.
- (2) TM 5-805-1, Standard Practice for Concrete for Military Structures.
- (3) TM 5-809-1/AFM 88-3, Chap. 1, Load Assumptions for Buildings.
- (4) TM 5-809-2/AFM 88-3, Chapter 2, Concrete and Structural Design for Buildings.
- (5) TM 5-809-3/AFM 88-3, Masonry Structural Design for Buildings.
- (6) TI 809-04, Seismic Design for Buildings, December 1998.
- (7) TM 5-809-12/AFM 88-3, Chapter 15, Concrete Floor Slabs on Grade Subjected to Heavy Loads.
- (8) TM 5-813-1/AFM 88-10, Chapter 5, Water Distribution Systems.
- (9) TM 5-814-1/AFM 88-11, Chapter 1, Sanitary and Industrial Waste Sewers.
- (10) TM 5-818-1, Procedures for Foundation Design of Buildings and Other Structures (Except Hydraulic Structures).
- (11) TM 5-822-2/AFM 88-7, Chapter 5, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas.
- (12) TM 5-822-5/AFM 88-7, Chapter 1, Pavement Design for Roads, Streets, Walks, and Open Storage Areas.

(13) TM 5-822-7/AFM 88-6, Chapter 8, Standard Practice for Concrete Pavements.

(14) TM 5-822-8, Bituminous Pavements - Standard Practice.

ATTACHMENT 9

EXCERPTS FROM THE INSTALLATION DESIGN GUIDE

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PART THREE

ZONE DISCUSSION

CHAPTER 9

BUILDING DESIGN CRITERIA

The purpose of this chapter is to provide visual instructions regarding choices to be made concerning Building Design Criteria.

SECTION A

VISUAL DESIGN

FACTORS

Characteristics of Form

Shape and Proportion

The primary characteristics of a form are its inherent shape and proportions. Proportion is most often considered to be the relationship of a building's height to width to length. The

concept of consistent proportioning can have a dramatic effect on creating or continuing a coherent architectural character on Ft. Lewis. There are obviously a number of critical factors

PART THREE - ZONE DISCUSSION
CHAPTER 9-BUILDING DESIGN CRITERIA

that impact the dimensions of a building; the proposed functioning of the space, activities to be accommodated, structural limitations and the context of adjacent exterior spaces. All of these factors, as well as a great many more, pressure a building's form and proportion. An additional determinant present in successful building design is the aesthetic judgement of the "desirable" dimensional relationships between an individual building part, other parts and the entire structure. To this end, a number of theories of "desirable" proportion have been developed over thousands of years.

The intent of all theories of proportion is to create a sense of order among the elements of the visual environment. That is why a clear understanding of these principles is critical to the purpose of an installation design guide for Ft. Lewis. Proportioning systems establish a consistent set of visual relationships between the parts of a building, as well as between the parts and the whole. These relationships may not be immediately perceived by the casual observer; however, the visual order they create can be sensed and appreciated through a series of repetitive visual experiences.

One of the oldest and most prevalent theories evidenced at Ft. Lewis is the mathematical system developed by the Greeks known as the "Golden Section". This mathematical system was originally based on the human body and has had application to architecture from the Parthenon to the works of LeCorbusier (Fig F-9-A). A rectangle whose sides are proportioned according to the Golden Section is

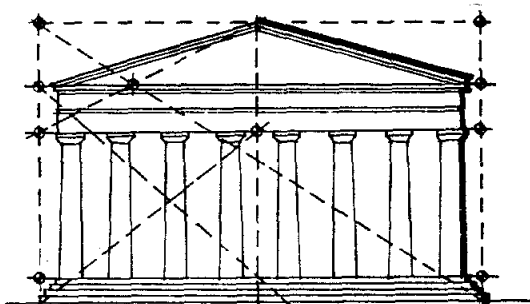


Fig F-9-A

known as a Golden Rectangle and is based on the ratio of 1 to 1.618 (Fig F-9-B).

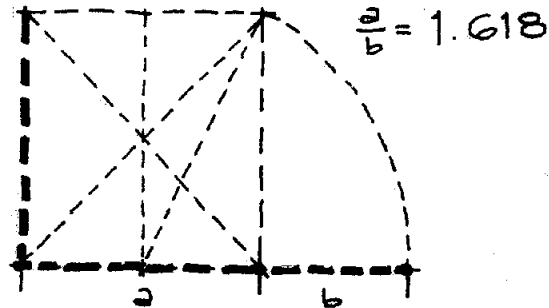


Fig F-9-B

The golden rectangle proportioning is most evident in the Garrison area of Ft. Lewis and a representative analysis is provided (Fig F-9-C).

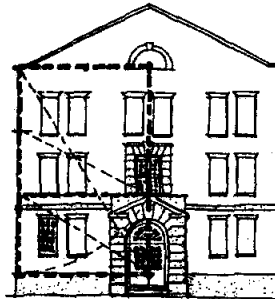


Fig F-9-C

Size, Massing and Scale

Massing, size and scale are three tightly interwoven design concepts. The mass of a building (or building part) is essentially its bulk; that is, the volume of space it encloses. The arrangement of enclosed spaces is the primary factor in determining a building's "massing"; ie, blocky, vertical, horizontal, etc. The height, length, width and depth of those masses are a building's (or other form's) size and determine its proportions. This size in relation to a form's surroundings (context) is referred to as scale.

The way a building is massed expresses many things about the building; however, these expressions, depending on the skill and expertise of the designer, may or may not be accurate. A very large, rectangular form, for example, would probably be identified as a warehouse or

repair shop. However, many other activities (commissaries, PX's, even barracks) might also be housed in very large, rectangular buildings, and fenestration and other architectural elements can not always succeed in communicating a building's function. Massing, therefore becomes critical in helping to identify building functions and in making buildings pleasant places to work, shop or live. Massing can also determine to a large extent how well a new structure fits into its visual context or how buildings in diverse locations, but serving similar functions, are identified as of the same type. In short, designers should manipulate building massing to relate compatibility with adjacent structures, to relate with other post buildings serving similar functions, to reduce a building's bulk so that it better relates to its human occupants and to define entries, various functions and so on.

In general, a designer has very little control over the actual size (overall dimensions) of a building since the volume enclosed by the building envelope is determined largely by the functions served by the building. What a designer can control to a much greater degree is the apparent size. By breaking down the building's mass into smaller parts and paying careful attention to the size of various exterior elements of the building as they relate to human beings and each other, the good designer can reduce a building's visual impact (Fig F-9-D). By the same token, a building's visual impact can be increased by applying the same principal in reverse.

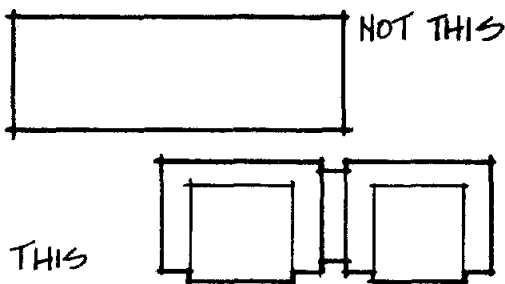


Fig F-9-D

As previously stated, the size of a form in relation to the size of surrounding forms is the con-

cept of scale. Scale is an extremely important, but too often neglected, design concept because, more than most other form givers, scale is sensed by human beings.

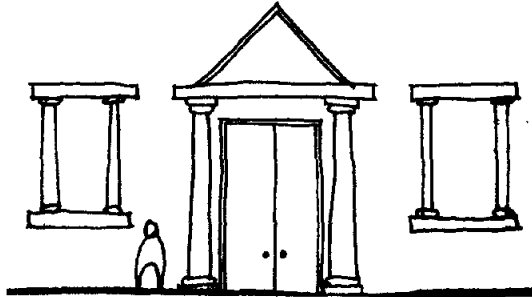


Fig F-9-E

Massing and fenestration (window and door openings and related details) are the primary determinants of a building's scale: massing because it determines a building's bulk, and fenestration because it enables people to gauge the building's size in relationship to the human body.

Oversized fenestration on a large mass conveys monumental scale while smaller, more finely detailed fenestration on a small mass creates a more human scale (Fig's F-9-E and F-9-F).

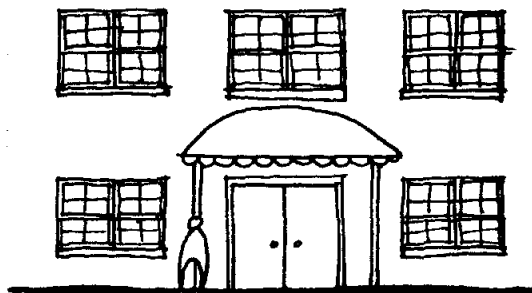


Fig F-9-F

Like massing, scale (or lack of it) can be used to help identify building function, to relate a building to others in a group and to increase or decrease the apparent size of a building.

Surface Articulation

Surface articulation can be defined as the manipulation of fenestration (doors, windows and their associated details), materials and other building elements (even color) to create patterns and give depth to architectural surfaces. This concept is closely related to scale and, in fact, is a prime determinant of scale. Blank, smooth walls, for example do not create a sense of scale while building surfaces which are enriched with detailed fenestration, textured or patterned materials and other forms of relief convey scale in a strong way (Fig F-9-G).

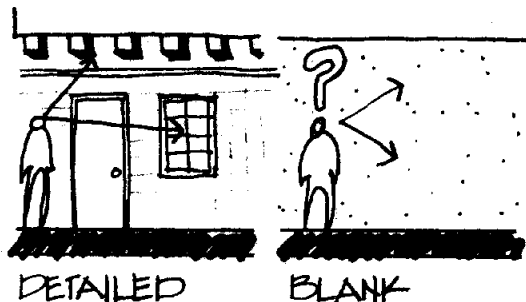


Fig F-9-G

Surfaces can be articulated in many different ways and many things can be expressed through that articulation. A building's structural bay size or a change in function or occupancy of the interior space are just two examples. Over-articulation, which results in a cluttered, cosmetic appearance should be avoided as diligently as blank facades and the resulting monotony and lack of scale.

Texture

Texture refers to the surface characteristics of a form and can be considered at both small and large scales. A brick wall, for example, has the small scale texture of an individual brick and the large scale texture of many bricks and mortar joints as part of a large surface. Humans perceive both tactile and light reflecting qualities of texture, and designers must respond to both (Fig F-9-H). Handrails, seating surfaces and flooring are just three ex-

amples of surfaces where the tactile qualities of the surface are critical. In buildings, though, the light reflective qualities of a surface are the primary determinants of its texture because humans generally see more of a building than they touch.

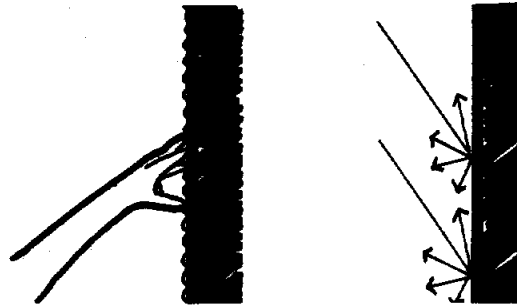


Fig F-9-H

The manipulation of textures is a valuable tool for the designer because it can communicate many things. Changes in texture can emphasize entries and other building elements, reduce the apparent mass of a building and distinguish one building in a complex from others. In general, rough textures are appropriate for residential and other "people" buildings and smooth textures for aircraft hangers, shops and other "machine" buildings. It should be remembered, however, that a change from smooth to rough textures on an industrial building can emphasize an entry, office or other area with a higher concentration of people (Fig F-9-I).

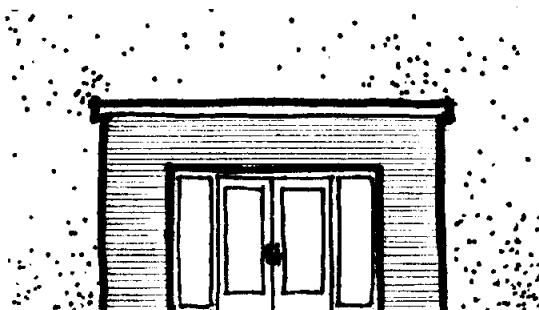


Fig F-9-I

Rhythm

Rhythm refers to the ways various building elements are grouped or placed on a facade.

Higginbotham & Assoc
April 1987

These elements (windows, pilasters, even voids or masses) can be repeated in a regular, even manner resulting in a very formal and, if the designer is not careful, monotonous rhythm (Fig F-9-J).

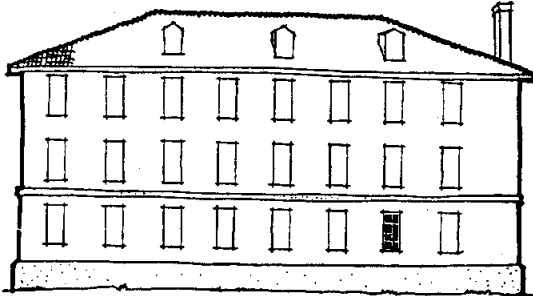


Fig F-9-J

Their placement can also assume what is known as a syncopated rhythm, one in which one repeating element is given more emphasis than the others (Fig F-9-K). A syncopated rhythm can be a successful way of creating variety in the facade of a large building while maintaining its architectural unity.

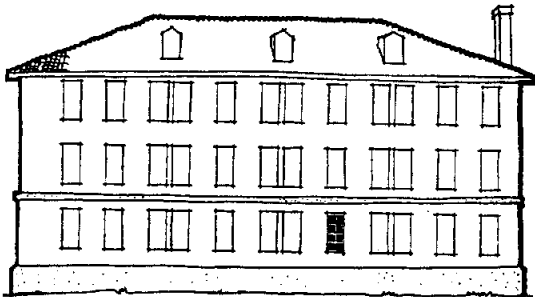


Fig F-9-K

Other fenestration patterns may have no discernable rhythm at all, resulting in an extremely informal appearance. This is generally not appropriate for the architecture of an installation like Ft. Lewis where military order is to be expressed in the buildings. The duplication of existing rhythms can be very valuable tools in relating a building to its context or giving a building in a remote location the same "feel" as another building of the same function.

Light & Shadow

The interplay of light and shadow on the various elements of a building cannot be ignored in this discussion of architectural design even though direct, bright sunlight is not as prevalent at Ft. Lewis as it is at other locations. In general, this interplay gives depth to a building and makes recessed areas such as entries, doors, windows, overhangs and setbacks more easily readable.

The fact that light and the resulting shadows are constantly changing emphasizes the importance of using light as a design element. Because direct sunlight is not prevalent at Ft. Lewis, and consequently shadows are not dark and crisp in relation to other localities, special consideration must be given to supplementing the light's effect.

This can be done in either of two ways:

- One method is to enlarge detailing elements and deepen recesses so that shadows, while still relatively light, will be "bigger". These larger shadows combined with more prominent elements will accomplish the goal of articulating the surface, but care must be taken to prevent the elements from becoming overscaled and out of proportion.
- Another appropriate method is to darken colors and deepen textures in areas commonly in shadow. This will give the desired result without adversely affecting the scale of the building and its parts (Fig F-9-L).

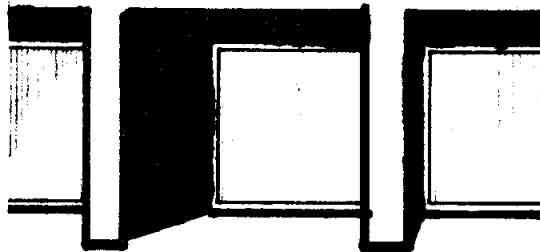


Fig F-9-L

Color

In the future, decisions must be made about the use of color (or lack of it) in all but the Old Garrison Area, for it is here that the most pleasing colors for building materials can be seen.

Warm orangy-red tones found in the brick and roof tiles add much warmth to the built environment (Fig F-9-M). These warm orangy-red tones complement the grey-green landscape. Sharply contrasting white painted trim provides counterpoint to the warm brick tones.

The predominant color of the natural topog-

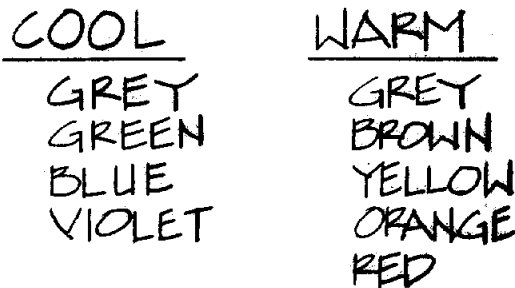


Fig F-9-M

raphy of Ft. Lewis is the dark green of the forested hillsides. It varies from an occasional bright, deciduous green to a black-green caused by the masses of evergreens.

Therefore, the natural background color palette of Fort Lewis is as follows:

- The sky color usually ranges from pale blue to various shades of cool grey.
- Irrigated grass provides a bright kelly green in summer; it changes from a bright green to a dull yellow-green as the summer progresses.
- Non-irrigated natural grasses turn to shades of buff and light brown during the summer.
- Charcoal grey, the color of much of the paved area around the buildings, is also a

strong influence.

- Fall is the most colorful time of the year when many leaves change to gold.

The colors chosen for building materials must:

- Relate well to each other.
- Relate well to the natural environment.

The natural color of building materials should be used whenever possible. Natural materials reflect a subtle gradation of color and texture that is impossible to achieve with paint. When making an effort to match existing colors, special attention must be paid to the exact materials used.

If color is added to the materials, such as a painted surface, a color scheme accentuating one color should be used.

Choose contrasting colors to provide accent and variety, remembering that bold colors tend to advance and pale colors tend to recede.

New building designs, remodelings and renovations must be studied for their color composition. Competent designers must create human built environments which are comfortable, interesting work and living spaces. An individual's response to color is impulsive and emotional, and generally people are far more affected by the color of an object than its form. More and better color in the built environment is needed at the Post.

When discussing color, reference should be made to the following:

- Color wheel
- Hue
- Value
- Chroma

A color wheel is a circular arrangement of hues (names for color) as they occur side by side with the three primary colors at opposite locations; it is useful in developing a color scheme in which hues relate well to each other (Fig F-9-N).

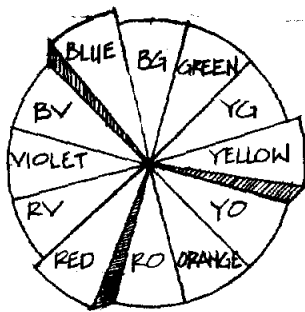


Fig F-9-N

For example, the reason the Garrison Area color scheme is so pleasing is that the roof/brick color and the foliage color are diametrically opposite each other on the color wheel, and, when placed next to each other, each appears its most intense.

At first glance this would indicate using warm, reddish tones as predominate wall colors. It must be noted, however, that the success of this color scheme in the Garrison Area depends largely on the fact that the colors are the natural colors of the materials used. Applied colors rarely, if ever, can achieve the same effect. In other words, warm colors, especially reds and oranges, should result only as a function of the materials selected; wall surfaces should never be painted to resemble brick or other such materials.

Value, the lightness or darkness of a color, should also be considered (Fig F-9-O). Generally, medium to strong values are preferred and value contrasts are desirable.

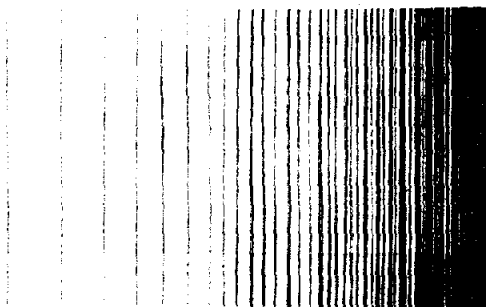


Fig F-9-O

Since the rainy, overcast weather casts a grayish tone over the whole region, there is a need to have colors appear clean and bright. Earth tones containing yellow, such as yellow-greens and yellow-browns, have a tendency to be unattractive in appearance.

Use dark trim on a light/medium building; use light trim on a building with a dark walls.

The color selections listed below are intended to establish a uniformity for the entire Installation. Federal Standard Colors have been used as the source to identify these colors and neutral tones.

Preferable choices

•Blue

•Trim; Doors; Fascias:

- » # 15080 - (Dark)
- » # 15090 - (Dark)
- » # 25102 - (Dark)
- » # 25109 - (Dark)
- » # 35109 - (Dark)

•Green

•Trim; Doors; Fascias:

- » #14109 - (Dark)
- » #34058 - (Dark)
- » #34108 - (Dark)

•Red

•Trim; Doors; Fascias:

- » #11136 - (Dark)
- » #21136 - (Dark)
- » #31302 - (Dark)

•Brown

•Trim; Doors; Fascias:

- » #20059 - (Dark) (This is a black-brown - not yellow-brown).

•White

•Trim:

- » #27875
- » For the purpose of creating a contrast with dark surfaces such as red brick, white is the best choice; therefore, use it for painting door and window trim.

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•Surfaces:

- » #27875
- » White is acceptable for individual walls to achieve a contrast in remodeling or new construction. White is also appropriate for walls of World War II wood buildings.

•Parchment

•Warm:

- » #26586 - (Medium) (Concrete masonry units)
- » #27722 - (Light) (Concrete masonry units)

•Grey

•Warm:

- » #36099 - (Dark) (Roof; Fascia; Trim)
- » #36373 - (Medium) (Metal Siding)
- » #35630 - (Light) (Trim; Metal Siding)

•Cool:

- » #36118 - (Dark) (Roof; Fascia; Trim)
- » #36375 - (Medium) (Metal Siding)
- » #37875 - (Light) (Trim; Metal Siding)

When using neutral colors (Parchment or Grey), select either warm or cool tones for an individual building or complex; do not intermix color palettes.

Design Principles

General

Care must be taken to constantly search for creative solutions and good design efforts must be put forth by the A/E contractors. In order

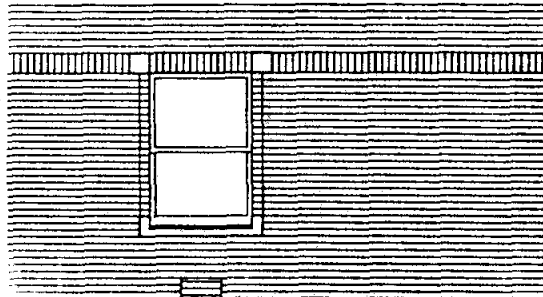


Fig F-9-P

to have an installation of noteworthy appearance, the buildings in all Zones must be treated with equal detailed design consideration (Fig F-9-P).

The best examples of the Georgian Colonial Revival Style demonstrate that the same quality wall and roof materials were used for Maintenance Buildings as were used for Administration Buildings and Troop Housing (Fig F-9-Q).

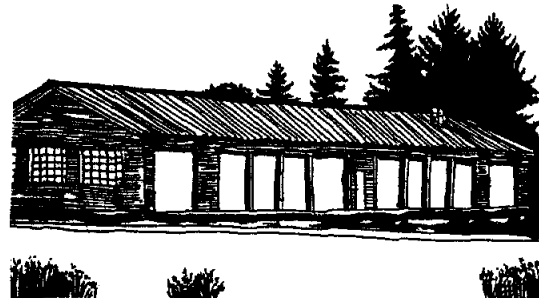


Fig F-9-Q

Community Buildings, such as the Main Post Chapel, also employed compatible materials (Fig F-9-R). Design continuity and visual interest was accomplished through the use of detailing and a visually discernible hierarchy. This practice should be continued today.

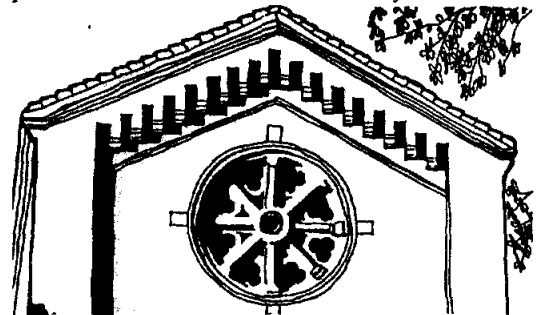


Fig F-9-R

Basics

The basic principles which explain how the elements of design are integrated to create a building design are:

- Unity
- Repetition
- Rhythm

- Variety
- Emphasis
- Balance
- Harmony

In order to have a common understanding of these terms, the following definitions are offered:

- Unity is the sense of wholeness in a design; every building should appear complete, either alone or as part of a complex.
- Repetition is the repeated use of design elements such as lines, spaces and textures which tie the design of the building together aesthetically and helps achieve unity.
- Light, shadow and color are used to achieve variety and relieve visual monotony.
- Emphasis is created by using a particular design feature to call attention to any given area of a building.
- Balance is the achievement of equilibrium in a design. Building elements are formally balanced if they are symmetrical. Building elements are informally balanced if there is a variety in the space relationship which allows a harmonious distribution of space, light and shade, form, line and color.

Expressions of Hierarchy

Buildings at Fort Lewis should reinforce the discipline and hierarchy of the Army by supporting those concepts with designs which follow the Military Park Theme. Since the most important buildings are not always the largest, factors other than size must draw attention to important buildings.

Developing a consistent building design hierarchy will assist in expressing each building's role in the overall Ft. Lewis complex. This Hierarchical ranking which communicates the importance of a building is expressed by a combination of factors such as:

- Size
- Massing
- Character
- Symmetry
- Formality
- Level of Detail

The most formal approach should be reserved for headquarters and administrative buildings located in the Old Garrison Area. This will consist of a combination of symmetrically organized, well balanced facades with a powerful sense of entry created by using carefully detailed, high quality materials (Fig F-9-S).



Fig F-9-S

Hierarchical Details

Attention should be paid to the following refinements:

- Blending new construction into this area of Georgian Colonial Revival style buildings
- Modifying geometric shapes and decorative elements to reflect the character of adjacent buildings.

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- Choosing materials such as brick and tile which will reflect a solid permanent character.
- Selecting high quality construction methods and materials.
- Incorporating strongly expressed formal fenestration patterns.

By contrast, a more informal character is appropriate in areas such as the Community Center and Family Housing. Design factors which can be used to create a less formal character are:

- Simple, unpretentious facades
- Asymmetrical building massing
- Instead of a container approach to the massing, here it would be more appropriate for the function of the building to be expressed in the building elements.
- Grouping or irregularly placed fenestration according to the functional dictates of the building (Fig F-9-T).

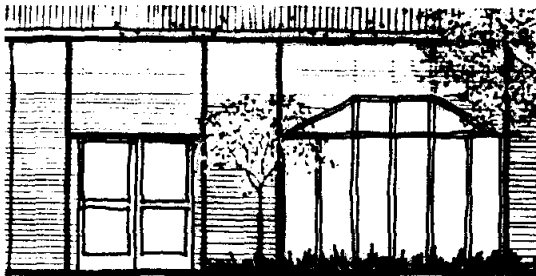


Fig F-9-T

- Selection of more than one material for walls
- Use of more contrasting colors and textures

Style

Architectural style, which can be defined as a distinctive, consistent and recognizable appearance, must be developed with a unified approach throughout the entire Installation. An accurate interpretation of the historic style, Georgian Colonial Revival, is most needed in the Old Garrison Area, so that new buildings, additions and remodelings will blend into the historic district and adhere to the principals of the Military Park Theme (Fig F-9-U).

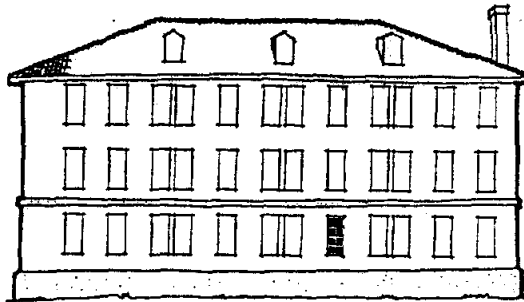


Fig F-9-U

As buildings are located further away from the historic district, more freedom of design interpretation is acceptable. For example, a more contemporary style utilizing certain Georgian Colonial characteristics would then be more appropriate for Zone 1 Headquarters and Administrative types of buildings. Some adaptation of Post Modernism, a decorative style characterized by a modern interpretation of classic forms and ornamentation, may be appropriate for buildings in Zones I, VI and VII (Fig F-9-V).



Fig F-9-V

The goal within each Zone is to create a harmonious blend of architecture, not one of monotony. It is appropriate to recognize that all building designs will be contemporary, i.e. of the time in which they are designed.

By way of contrast, certain areas should be strictly contemporary in design, such as the development of a "High-Tech" appearance in Zone II - Airfield. Zone V - Family Housing is another area in which contemporary forms of housing design are entirely appropriate (Fig F-9-W).

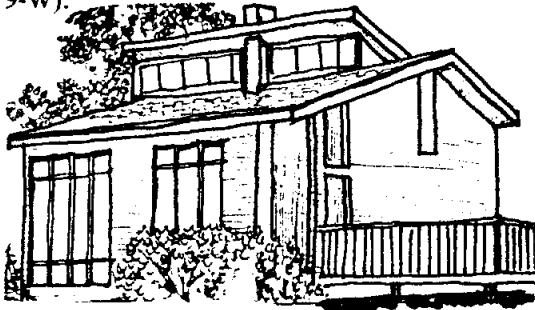


Fig F-9-W

Extreme styles are not recommended as they are faddish and do not adhere to the principals of the Military Park Theme. The Dispersed Industrial Style, seen in the Troop Housing Area, while recognizable, is to be discouraged, as this Military Functionalism Style has little visual appeal.

The Cobblestone Style, as demonstrated by the Main Gate and Gas Station, has a fine regional character which would be entirely appropriate for structures such as open air pavilions in Zone VIII - Open Space (Fig F-9-X).

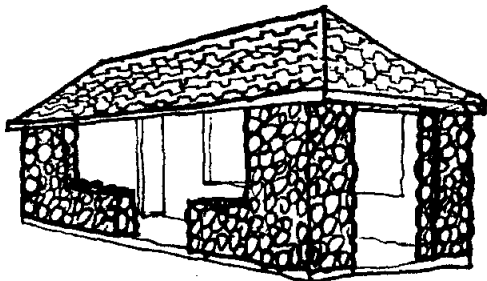


Fig F-9-X

Elevation Design

The basic architectural style of each building is more closely related to the design of elevations than any other factor. Much flexibility is possible in the design of elevations through the development of an ongoing design process which requires a continual studied relationship between the floor plan, the elevation and the resultant appearance. An attractive and functional elevation depends on factors of roof style, overhang, grade-line position and relationship of windows and doors to the building line.

A desirable elevation design results by development, by balancing the exterior appearance of the building with the interior functional elements required. As the vertical heights of doors, windows and the overall building are established, their appearance must be judged and alterations made to "massage" the visual effect into a unified whole. Nothing affects the silhouette of a building more than the roof line, so a three dimensional awareness is always required when a building is studied in two dimensions, as in an elevational drawing.

It should be remembered that although Louis Sullivan made the statement, "Form follows functions", no two designers will ever evolve the same form for the same function. Flexibility is mandatory. However, a good design will reflect the building's purpose, especially if design consistency is utilized throughout each zone.

Materials

As can be expected because of its large size and its development history, Fort Lewis has no cohesive, comprehensive architectural character. This is demonstrated not only by the different planning and architectural styles existing in various locations, but also by the unrelated exterior materials used on adjacent buildings. Given this existing diversity of materials in use at Fort Lewis, the goal should be to use a limited, well defined palette of materials. This approach will allow individual neighborhoods to retain or develop their own identities without creating too much diversity.

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Because of the temperate climate and accompanying lack of strong sunshine, thermal and reflective qualities of materials are not as critical as they would be in the desert Southwest, for example. Obviously, though, care must be taken to select materials which function well in a damp climate.

Furthermore, because Fort Lewis is adjacent to a major metropolitan area with numerous transportation systems, availability of exterior materials and labor to install them are not as limited as they are in more remote locations.

Exterior material selection, therefore, should be primarily based on aesthetic, contextual and economic criteria. To this end appropriate materials for each zone and building type have been selected and can be found in Section B of this chapter.

Context

Context, in terms of military architecture and planning, refers to the general character of an installation or part of an installation. This character is created by similarities in the various form generators within a defined area such as:

- Massing
- Proportion
- Materials
- Texture
- Colors

In the Garrison Area, for example, the Georgian Revival architecture with its quality materials, high level of detailing and formal symmetrical planning gives an impression of tradition, discipline and order. These are all important military values which, when expressed in the built environment, help uplift morale and generate pride (Fig F-9-Y).



Fig F-9-Y

A hierarchical order helps distinguish building functions from one another and reinforces that concept of military order.

The Division Area, on the other hand "feels" much less ordered and does not create the same sense of importance for the buildings (Fig F-9-Z). The buildings themselves are industrial in nature, not residential or administrative, and don't reinforce the military values listed above.



Fig F-9-Z

As one can readily understand, the context of the two areas of Ft. Lewis differ dramatically and contextual designs for each of the two areas would differ just as dramatically.

A contextual approach to design, however, should not result in a "cookie-cutter" duplication of nearby building forms. A talented designer could, by addressing the most pertinent design characteristics of the existing buildings, design an obviously contemporary building within the context of the Garrison Area. He or she could also design a building which adheres to the design principals of the Military Park Theme (axial relationships between buildings,

hierarchy, expressed entries, hierarchal use of detail, etc.) and yet still be in context with the rest of the Division Area (Fig F-9-a).



Fig F-9-a

The critical task is to isolate those characteristics which most give an area or building its identity and to integrate those characteristics into the new design.

Design Influence Within Historic District

As described in the Hightower Historic Properties Report on page 6-9, the period-revival design character should prevail for any existing or new buildings which are located in the historic district. These historic guidelines are to take precedence regardless of which Zone the building occupies. For clarity, check the historic district maps provided in the Hightower Report.

If modifications are made to these buildings, the design consideration should follow the Secretary of the Interior's standards for rehabilitation and guidelines for rehabilitating historic buildings. Maintain original historic fabric, appearance and stylistic integrity (Fig F-9-b).



Fig F-9-b

Building Components

General

The fundamental shape of a building should be consistent with the basic desired architectural style of the building. The word pitch is used to describe the slope of a roof. Pitch is expressed as a ratio of vertical rise to horizontal run, or in inches of rise per foot of run. The design of each exterior building (or complex) elevation is strongly affected by the following factors:

- Roof Pitch - high or low
- Roof Overhang - small or large
- Grade Line - high or low
- Foundation - exposed or below grade
- Window/Door Placement - random or related to building lines
- Vertical Elements - high and narrow, or low and wide
- Entry - at grade, above grade, below grade

The sum total of each of these design factors has considerable bearing on the consistency of the design.

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The final appearance of each elevation depends upon the:

- Roof line (affects silhouette).
- Relationship among the various areas of the elevation such as surfaces, doors and windows.
- Balance of texture, light, color and shadow patterns.
- Each elevation should appear as one integral and functional composition.

Major Building Elements

Base

Base refers to that portion of a building below the ground floor but above the grade line. A base generally contrasts in color and material with the majority of the building elevation. It gives the building added prominence because of the extra height and the sense of procession and arrival associated with a raised entry (Fig F-9-c).

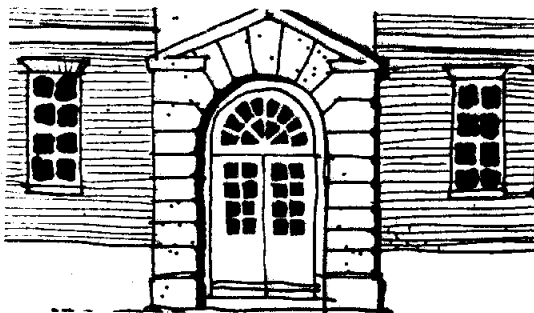


Fig F-9-c

Walls

Walls are part of the skin of the building and, in some cases, part of the structural system as well. As a viewer approaches a building the wall becomes more and more important in the viewer's perception of the building. Walls can appear heavy or light and can be transparent or opaque (Fig F-9-d).

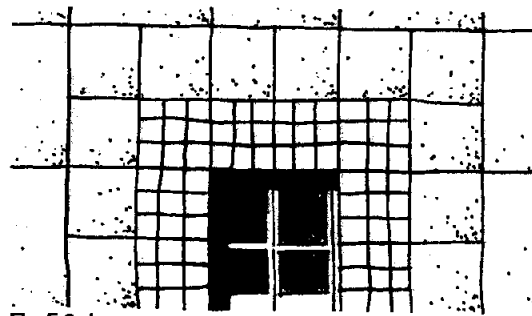


Fig F-9-d

Entrances

Entrance as used in this Guide refers to those exterior elements of a building which combine to shelter, draw attention to and otherwise emphasize the location at which one enters a building. Entries can be recessed into the building mass or protrude from the facade (Fig F-9-e).

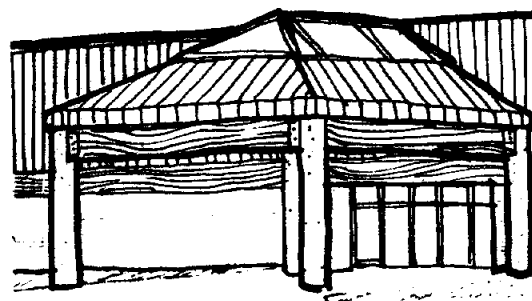


Fig F-9-e

Fenestration

Fenestration is generally defined as the door and window openings and related facade details of a building. Fenestration is a major generator of scale and plays a key role in contextual design (Fig F-9-f).

Doors are a point of contact which all users have with a building and require thoughtful design and selection. Windows serve three primary functions: daylight in, views out and views in. Their design should reflect those functions while maintaining architectural cohesiveness with neighboring buildings.



Fig F-9-f

Roof

A building's roofline is its prime form generator, especially from a distance. (See General, page 9-9). Roofs take many forms (Fig F-9-g).

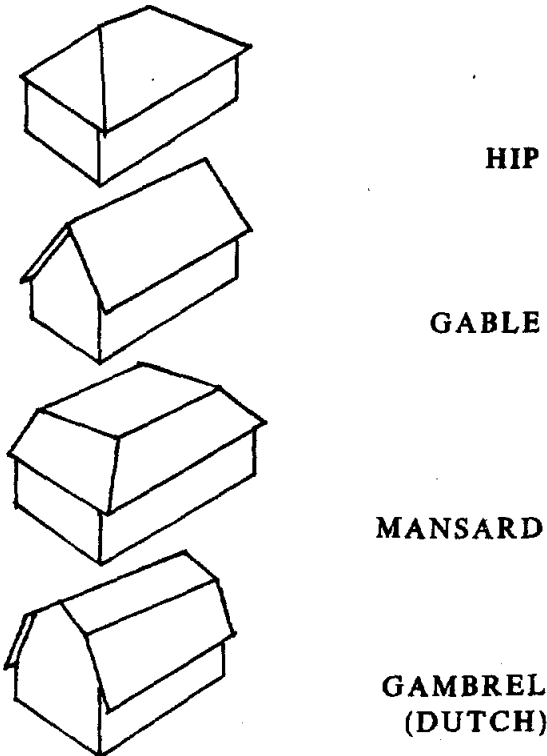


Fig F-9-g

At Ft. Lewis the most common roof forms are:

- Flat (usually not perceivable from the ground)

- Hip (slopes to all sides)
- Gable (slopes to two sides).

New building roofs should generally be composed of these roof types. Mansard and Dutch should not be used although shed roofs (sloping in one direction) are acceptable in some Zones.

Other elements which are part of a building's "roof" include:

- Cornices, (exterior trim of a structure at the meeting of the roof and wall), which may be used to emphasize a flat roof and separate it from the wall plane.
- Eaves and soffits (horizontal surfaces under overhangs), which shelter walls from sun and rain.
- Clerestories (bands of glazing between two roof planes which admit light to the center of a building) and skylights (glazed roof openings which admit daylight into the space below).
- Dormers (vertical windows which project from a sloping roof) should always be functional light sources or room windows, not decorative "dummies".

Secondary Building Elements

Covered Walkways

In Ft. Lewis' generally damp climate, covered walkways could provide welcome protection from the weather, however, care must be used in their design. Walkways should unify buildings in a group through the use of common materials and forms. Walkways should not look like long, thin aluminum carports.

Porte-Cocheres

A porte-cochere is a logical entry element on any building where large numbers of people load or unload from vehicles at specific times,

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i.e. schools, clubs, chapel, etc. As with walkways, however, consideration must be given to the aesthetic qualities of the structure to avoid a flimsy, "attached" appearance. A porte-cochere should be roofed with the same materials as its adjacent building; wall or column materials should likewise match or compliment those of the main structure.

Plazas and Courtyards

In any temperate climate, outdoor living spaces must be considered as part of almost any building's overall composition. These spaces should be designed as outdoor extensions of rooms in adjacent buildings. Landscaping should be incorporated into courtyard designs, and paving materials or patterns should set courtyards and plazas apart from general circulation spaces (Fig F-9-h).

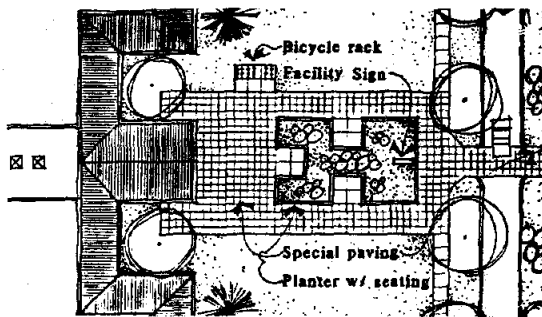


Fig F-9-h

Building Details

A building's detailing, its joints, juxtaposition of materials, hardware and so on, cannot be left to chance anymore than any other part of a building's design (Fig F-9-i). Detailing should be consistent with the character of a building and should help tie all the elements of a building into one cohesive package. A consistent manner of detailing may also be used to unite similar buildings in diverse locations.

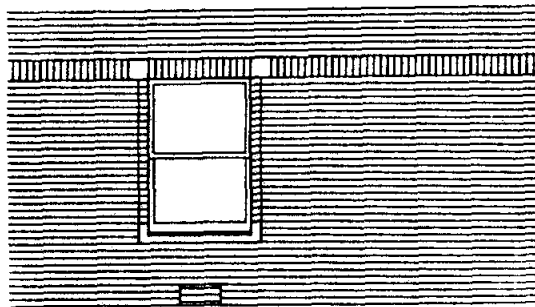


Fig F-9-i

Miscellaneous Elements

Mechanical Equipment

Few things can ruin a building's appearance and a user's experience of it as quickly as the insensitive locating of mechanical equipment and other "necessary evils." Unless the equipment can be integrated into a building's overall design (and this is very difficult and rare), it must be hidden from view. It should be located away from major entries, parking areas, main streets and any other areas where it can be seen by large numbers of people.

Two approaches are usually applied separately or together to provide a screen. A physical, visual barrier, preferably designed as part of the architectural fabric of a building, can surround the equipment, or landscaping, usually evergreens, can be strategically located to block views. The same principals should be applied to loading docks and any other elements usually considered unsightly. Experience at Fort Lewis has shown that roof-mounted equipment has not been successful because it usually causes roof-leaking problems.

SECTION B

ZONAL APPLICATION

General

Section B has been developed to establish specific design guidelines in each Zone regarding the selection of exterior building materials. These choices were based on aesthetic, contextual and economic criteria.

Zonal Classification

In order to aid in understanding of Zones, a Zone Map has been provided at the beginning of this section (Fig F-9-j). It is important to remember that the Zones and Design Guidelines are based on functional zone classification, not geographical location on this map.

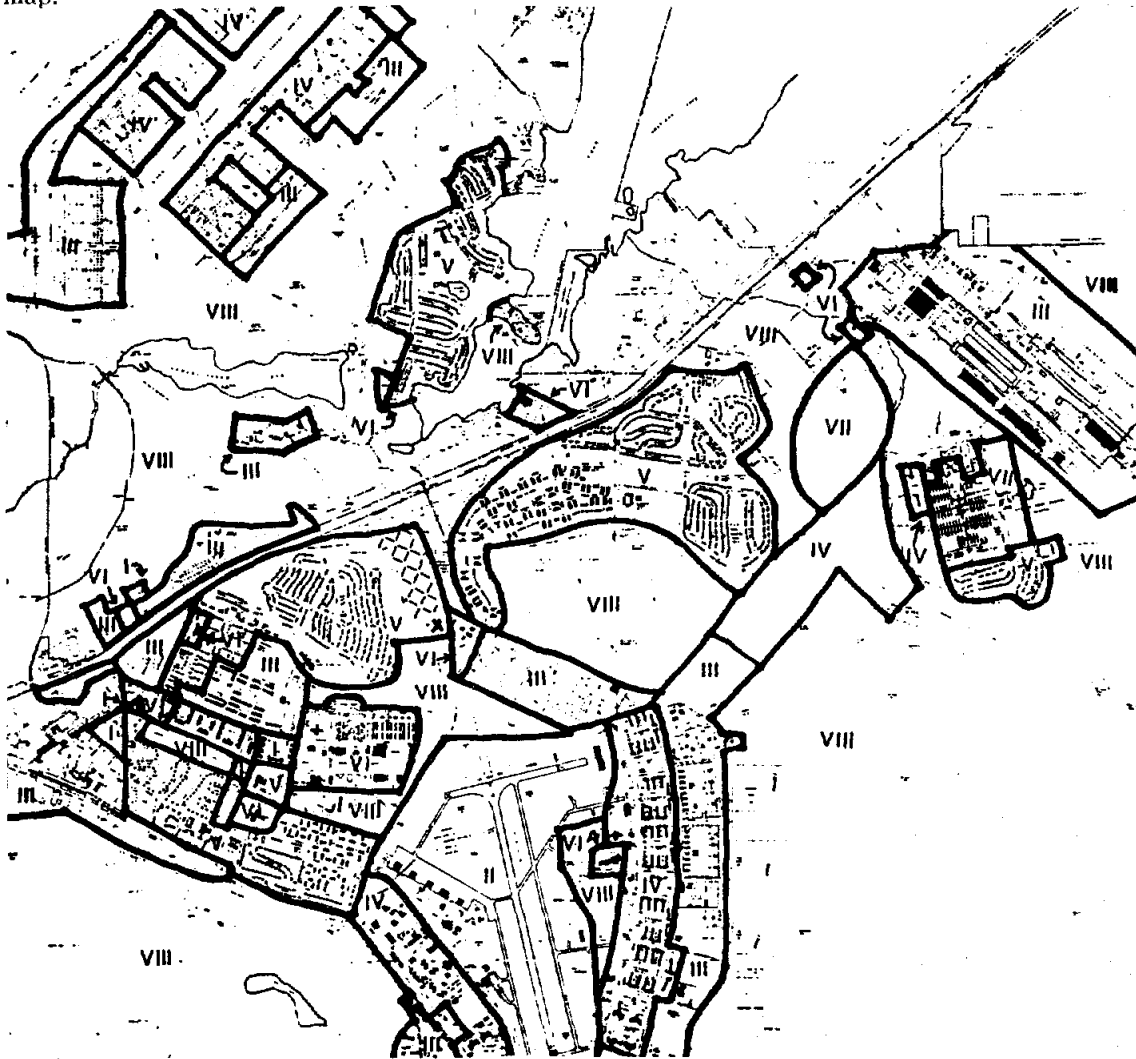


Fig F-9-j

Section B

Zonal Application

Zone I - Headquarters/Administration

Post Headquarters, I Corps Headquarters, 9th Infantry Division Headquarters, Main Installation Entrances, Installation Administrative Functions.

Visual Building Design Factors

Shape and Proportion

Close visual relationship to surrounding permanent buildings.

The Garrison Area massing should strongly influence the building massing in this zone. Massing tends to be relatively monolithic and unbroken which has obvious symbolic importance. Use a single unbroken mass, an L - Shaped arrangement of building elements a U - Shaped arrangement of building elements.

Proportions of long facade: $H = 1 \frac{1}{2}$ to $W = 4$ to $D = 1$.

Proportions of long facade: place emphasis on golden section proportioning.

Size, Massing and Scale

Monumental: building forms, fenestration, entrances, floor to eave height.

Human: (also) fenestration (regular sized), stairs, railings, trim.

Height limit: 4 stories (I 45"). No building taller than I-Corp Headquarters in Garrison Area.

Expressed major entrances, stairs, porches

Consider continuity of existing expression lines at 1st story

Monumental scale building forms, fenestration, entrances, floor to eave height.

Human scale may also be applied to fenestration, stairs, railways and trim.

Height limit: to overhang on long facade = 40 feet.

Close visual relationship to surrounding permanent buildings.

Surface Articulation

Wall surfaces: 3 dimensional treatment, compatible with existing examples.

Rhythm

Regular sequence of repeated surface treatments.

Regular sequence of fenestration (Fig F-9-k).

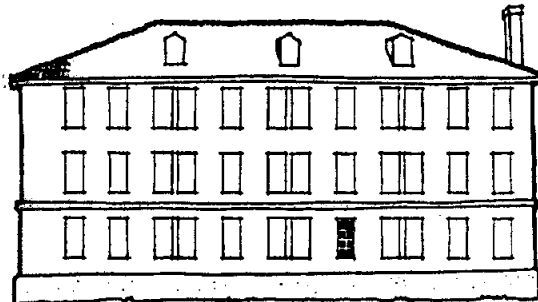


Fig F-9-k

Expressions of Hierarchy

The principles of visual hierarchy should be very carefully considered in this zone to emphasize the most important structures. A clear consensus with regard to the relative importance of the structure in question should be achieved prior to development of design.

Style

Close attention to traditional style choice is required in actual Garrison area. More adaptation or interpretation of classical forms is allowed in other physical areas.

Boldly designed attractive entrances Fig (F-9-l).

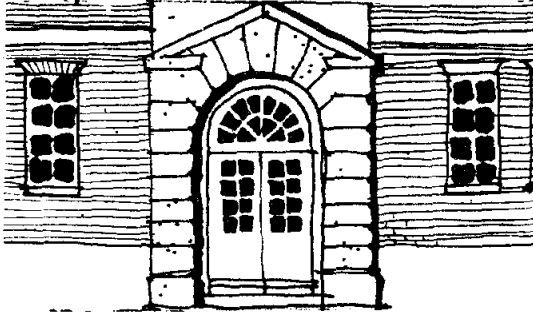


Fig F-9-l

Building Components

Major Building Elements

Entrances

Make distinction between major and minor and public and private entrances with detailing, location, etc.

Traditional Entrances. - wood door with glazing; possibly also sidelights.

Contemporary Entrances (not allowed in Garrison Area) - metal frames and doors; possibly also adjacent glazing

Walls

Brick - Red/orange (Color to match existing). (Also, pattern should relate to nearby existing)

Cobblestone/fieldstone - natural neutral tones (match existing) use at installation only.

Concrete Masonry Units w/split face texture - cool grey.

Fenestration

Windows and doors placement: individually.

Doors

Solid core, decorative panel wood door; similar to existing.

Contemporary Entrance doors (not allowed in Garrison Area).

Windows

Casement.

White vinyl clad wood.

Dark bronze anodized aluminum.

Double hung.

White vinyl clad wood divided lite (Fig F-9-m).

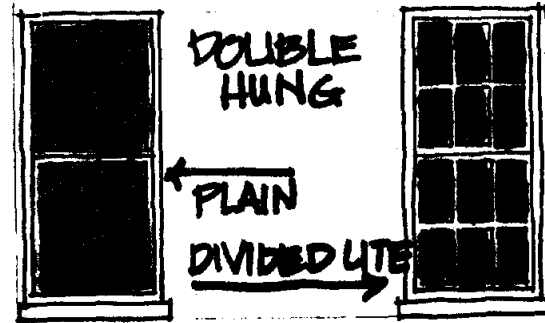


Fig F-9-m

Dark bronze anodized aluminum (not allowed in Garrison Area).

Fixed Glazing.

Glare - reducing, medium tints (not allowed).

Reflective glass not allowed.

Large expanses of glass should be multi-paned.

Roof

Pitch: 5/12; shape: hip with gables as accent (Fig F-9-n).

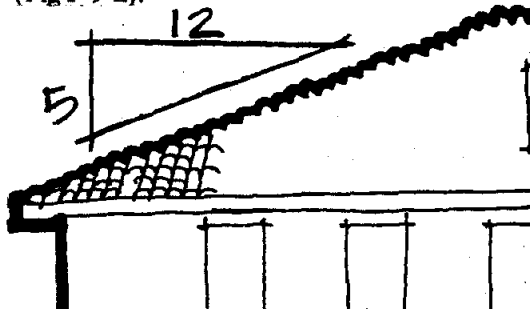


Fig F-9-n

Overhang - Min 2'0", Horizontal building lines accented at eave line.

Clay barrel tile - Red/orange (to match existing).

Concrete flat tile - Dark cool grey.

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Metal standing seam - Dark cool grey.
Wood - Cool white.
Soffit: Flat.
Fascia: Vertical.
Cornices: Optional.
Dormers: Optional; relate to nearby existing.
Clerestories: Optional.
Skylights: Optional; provide curb model.

Miscellaneous Elements

Covered Walkways
Desirable.

Porte-Cocheres
Desirable (when a covered entrance for important personages is needed).

Plazas and Courtyards
Desirable

Other Features
Structural brick arches cut or cast stone.
Masonry columns, porches.

Gutters and Downspouts
Aged copper or dark anodized aluminum.

Mechanical Equipment
Ground mount at inconspicuous location and completely screen from view.

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then dark grey (#36099) or green (#34092) (as seen looking east from 41st Division Drive).

Decorative Patterns

Use cautiously near ground level to lower scale, define entries, break up monotonous masses, etc (Fig F-9-p).

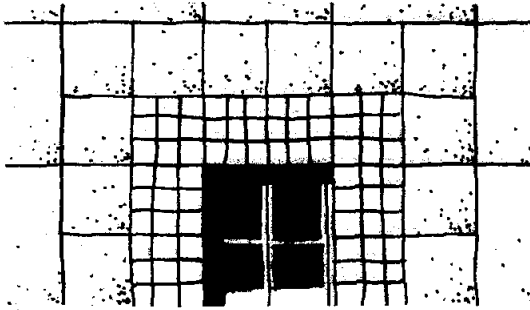


Fig F-9-p

Not too abstract.

Fenestration

Group fenestration elements together - avoid "lonely" windows punched into expansive wall surfaces.

Doors

Glazed aluminum or other metal with sidelights in main entries and other highly trafficked areas. Hollow metal typical most areas. Avoid door locations which appear random and have no definition, i.e. overhang, recessed door stoop, etc.

Windows

Casement, awning or other as situation dictates. Avoid natural anodized aluminum or painted metal. Tinted (but not reflective) glazing.

Window Sills and Openings

Use change in texture of material, direction of coursing, etc. to provide moderate contrast with surrounding wall material.

Fixed Glazing

Avoid too large expanse near ground level. Divide into lites.

Roof

Low slope roofs are appropriate. Flat concrete tile: medium or dark warm grey. Metal standing seam: medium or dark warm grey.

Skylights

Use whenever possible - glazing or insulated, light transmitting material.

Cornices

Use change of material, color, texture, etc. and/or projection to provide a "top" for flat-roofed buildings (Fig F-9-q).

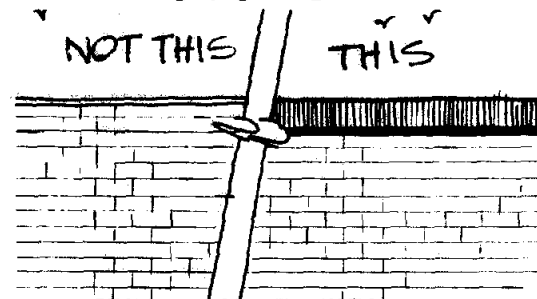


Fig F-9-q

Miscellaneous Elements

Covered Walkways

Provide walkways designed compatibly with adjacent building along very high-use pedestrian

paths, i.e. between two buildings serving same occupant (Fig F-9-r).



Fig F-9-r

Plazas and Courtyards

Provide "people spaces" for outdoor lunches, breaks and informal conferences, and plazas to contribute to a ceremonial sense of arrival/departure at VIP circulation points.

Gutters and Downspouts

Prefinished to match adjacent surface - place at corners, etc. and avoid "lonely" downspout whenever possible.

Railings

Match window/door material.

Mechanical Equipment

Locate away from circulation routes, especially pedestrian, and screen with landscaping, walls, etc.

SECTION B

ZONAL APPLICATION

Zone III - Maintenance/Storage/Supply

Motor Pools, Industrial Facilities, Logistics Support Center

Visual Building Design Factors

Size, Massing and Scale

Obviously quite large in general, but entries, office areas and other similar functions should be expressed separately in smaller, more varied masses. Reduction of scale in areas viewed close-up should be accomplished with differing masses, textures, materials, fenestration, etc.

Rhythm

Avoid too much repetition on very large buildings to avoid monotony. Break patterns into groups to reduce scale, i.e. IIIXXIIIIXXIII, not IIIIIIIIIIIII.

Expressions of Hierarchy

Differentiate with materials, level or detail, color, etc. between utilitarian (equipment oriented) and administrative (people oriented) buildings.

Building Components

Major Building Elements

Walls

Concrete: with texture and relief provided by

form impressions, expansion joints, etc. with light, warm tones.

Concrete Masonry Units: Various textures (avoid fluted and very large areas of smooth) Use light, warm tones with painted or textured accents or other colors as accents.

Fenestration

Use glazing elements to break up long, monotonous building facades.. Group fenestration elements together.

Doors

Use tubular metal frame with glazing at main entries, hollow metal for service doors and garage doors painted in bold identifying colors at drive-throughs and loading docks (for example, blue door with white, oversized number) (Fig F-9-s).

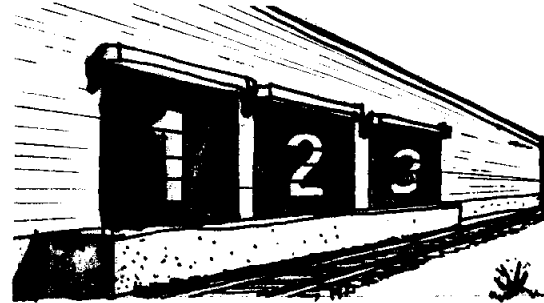


Fig F-9-s

Windows

Window style and size should reflect activities inside, i.e. large, high, fixed glazing with operable awning at bottom for shops and smaller operable units for offices.

Skylights and clerestories should be used extensively to provide natural light in central areas of large buildings.

Roof

Pitched roofs : 5/12.

Pitched roofs of asphalt shingles or, preferably, standing seam metal to indicate entrances and different functions (Fig F-9-t).

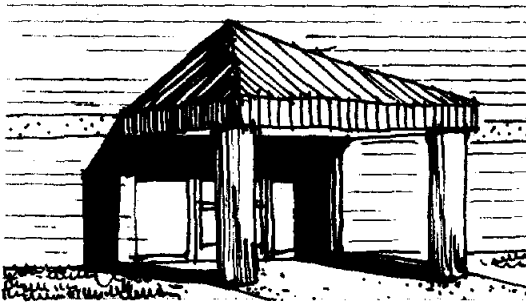


Fig F-9-t

Miscellaneous Elements

Covered Walkways

Might be provided between buildings which share an occupant and generate a large amount of cross-traffic.

Plazas and Courtyards

Should provide for employee breaks, lunches and informal meetings.

Mechanical Equipment

Should be screened and located away from entries and other traffic areas.

SECTION B

ZONAL APPLICATION

Zone IV - Troop Housing

Unaccompanied Enlisted Housing, Unit Administration/Storage, Battalion Headquarters

Visual Building Design Factors

Shape and Proportion

Use Golden Rectangle when possible. Arrange buildings in "L" or "U" configurations around courtyards to reinforce unit identity (Fig F-9-u).

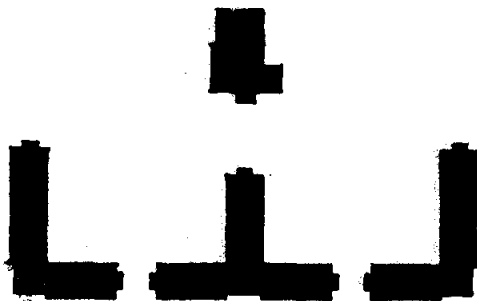


Fig F-9-u

Size, Massing and Scale

Articulate massing to emphasize entries. Scale elements should reinforce hierarchy.

Surface Articulation

Use surface articulation to emphasize hierarchy and to help identify individual quarters within barracks buildings.

Rhythm

Use similar rhythms of detailing, fenestration, etc. to tie together functionally dissimilar buildings in a group.

Expressions of Hierarchy

Overcome size vs. importance conflict of large barracks, medium unit administration/storage buildings, and small battalion headquarters by using roof pitches, materials, etc. to add prominence to battalion headquarters.

Style

New buildings or additions in Division Area should maintain "modern" style but with much more emphasis on Military Park Theme; ie, symmetry, hierarchy, detailing, etc. Buildings in new areas should be contemporary in character with elements of Georgian Colonial Revival when possible (proposed Jackson Avenue Troop Complex is a good example) (Fig F-9-v).



Fig F-9-v

Building Components

Major Building Elements

Base

Elevate brigade, group and battalion headquarters when possible.

Entrances

Identify entrances of all building types with recesses, pitched roofs, change in texture, material or color, etc.

Walls

Red brick, split-face concrete masonry units (grey), textured architectural concrete (not exposed aggregate) are all appropriate.

Fenestration

In general, use fenestration to articulate facades and provide scale. Use changes in fenestration patterns to identify changes in interior function. Avoid natural aluminum; use dark anodized (bronze or black) instead.

Doors

Storefronts are acceptable in all building types.

Windows

Do not use horizontal bands of glazing in barracks except at day rooms and other common areas; individual quarters should be reflected by window type and placement. Storefronts are acceptable in all building types.

Roof

Whenever possible, articulate entries (new and existing) with a sheltering roof form. Standard new roof to be hip (5/12 pitch) with gable accents. Appropriate materials are clay and concrete tile and standing-seam metal (Fig F-9-w).

Miscellaneous Elements

Plazas and Courtyards

Plazas should be provided as entry elements

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April 1987

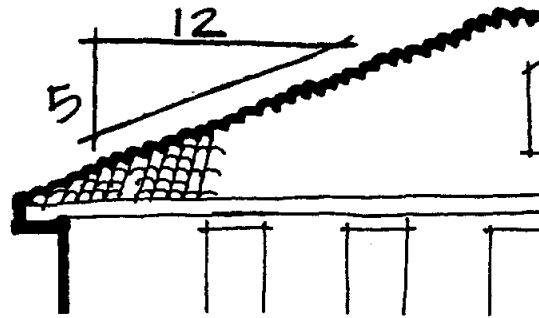


Fig F-9-w

for battalion headquarters. Courtyards at barracks are extremely important as areas for recreation and relaxation, and to help reinforce unit identity.

Mechanical Equipment

Mechanical equipment, dumpsters, loading docks, etc. should be screened by landscaping and/or walls and should be located in unobtrusive locations whenever possible.

SECTION B

ZONAL APPLICATION

Zone V - Family Housing

Detached Housing, Attached Housing, Dependent Schools

Visual Building Design Factors

Shape and Proportion

Schools located in family housing areas should relate to that housing; ie, massing and form should reduce apparent size of school by breaking the overall building mass up into smaller units. Pitched roof elements, especially of entries should also be incorporated. Materials should be the same as the predominant housing materials (except for wood siding).

Size, Massing and Scale

Small masses, whether individual homes or parts of a large whole should predominate. Use different floorplans and manipulate similar elements to create a feel for individual homes while retaining a consistency within each residential development.

Small, variable masses, articulated fenestration and other exterior detail should be combined to produce a residential scale (Fig F-9-x).

Rhythm

Use subtle, informal rhythms to tie together groups of houses or parts of large multi-family buildings.



Fig F-9-x

Expressions of Hierarchy

Use formality, size, level of detail and quality of materials to express the ranks of family housing dwellers.

Style

The style used should vary with the location; ie, new housing in the Garrison Area should be compatible with existing Greenwood and Broadmoor Housing (Georgian) with brick veneer and painted wood siding and trim (Fig F-9-y), while new housing in the natural areas



Fig F-9-y

near North Fort should have "Pacific Northwest" flavor (native stained wood and stone materials, heavy textures, etc) (Fig F-9-z).

Building Components

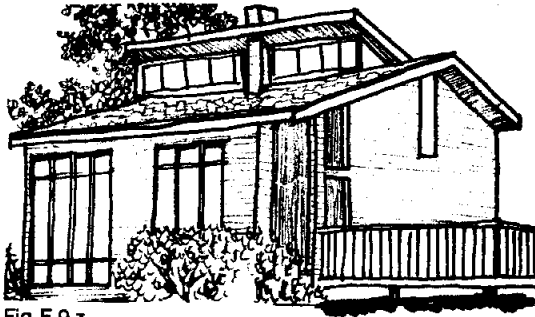


Fig F-9-z

Major Building Elements

Walls

Near Garrison Area: Red brick to match existing and painted wood trim.
Others: Native wood and stone (heavy texture).

Fenestration

Use traditional forms to relate to Garrison Area Housing where appropriate. More contemporary and informal forms should be used in other areas.

Doors

Painted solid core wood in "traditional" areas - stained wood in other areas.

Windows

Divided lite to match nearby existing.

Roof

Near Garrison Area: Clay tile or dark grey asphalt shingles.
Other: Asphalt shingles.
Roof pitch 3/12 min.

Dormers

Use as windows for second story bedrooms.

Miscellaneous Elements

Plazas and Courtyards

Private and semi-private spaces should be provided at multi-family buildings to provide outdoor living space and transitions from public to private space.

Gutters and Downspouts

Paint to match fascias and other adjacent materials.

Pediments

Can be used as door detailing in upper level officer housing near the Garrison Area (Fig F-9-aa).

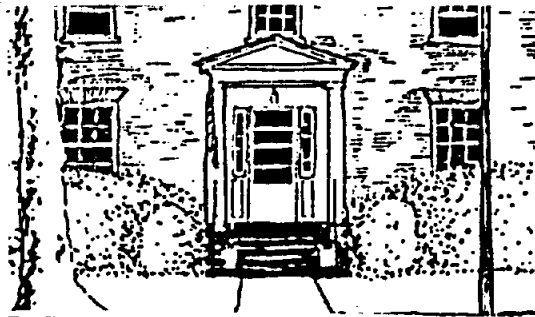


Fig F-9-aa

Mechanical Equipment

Should be located away from entries and screened from view.

SECTION B

ZONAL APPLICATION

Zone VI - Community Facilities

Retail Outlets, Indoor Recreation Facilities, Moral and Welfare Facilities, Theatres, Child Care Centers, Auto Craft Shops, Chapels and Religious Education, etc.

Visual Building Design Factors

Shape and Proportion

Use Golden Rectangle when possible as proportional system to help relate buildings to Garrison Area.

Size, Massing and Scale

Manipulate massing of large building to indicate entryways, etc. Scale of community facilities should be very "human" (Fig F-9-bb).

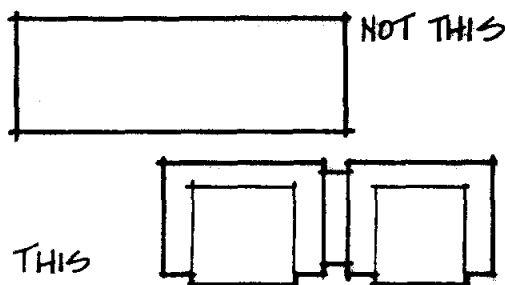


Fig F-9-bb

Surface Articulation

Very important in community facilities because of high concentration of people. Building facades need to add "life" to these areas with fenestration, overhangs, textures, etc.

Texture

Use "comfortable" textures at areas where people congregate to encourage lingering.

Rhythm

Rhythms should be lively and small-scaled.

Light & Shadow

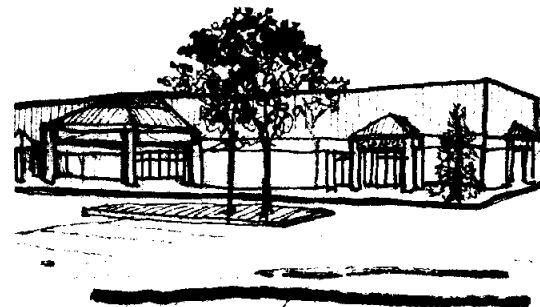
Use to attract attention to buildings, especially retail, from moderate distances.

Expressions of Hierarchy

Not a critical factor in Community Facilities.

Style

Community Facilities should relate to their immediate surroundings as well as have common elements. "Festival Marketplace" idiom is appropriate for retail, recreation and food service buildings (Fig F-9-cc)



Building Components

Major Building Elements

Base

Since hierarchy is not a critical factor, raising a building on a base is not a priority.

Entrances

Very important element in facilities which serve large numbers of people, especially children and off-post users. Should include weather protection. Standing seam metal roofing and fascia are generally appropriate (Fig F-9-dd).

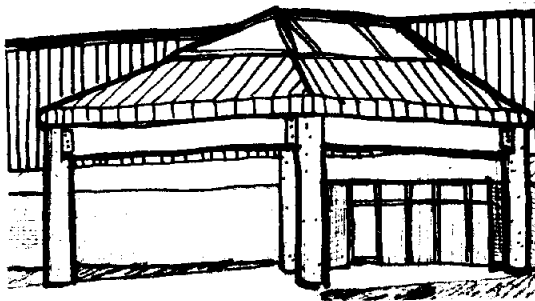


Fig F-9-dd

Walls

Avoid large expanses of un-articulated wall surface, especially at "people" areas. Use recesses, protrusions, structural expression, etc. to articulate walls. Masonry and concrete are most appropriate materials.

Fenestration

Allow views into and out of buildings whenever possible. Avoid reflective or darkly tinted glazing. Aluminum (preferable dark bronze or

black) storefront construction is generally appropriate.

Roof

Introduce pitched elements whenever possible, especially in facilities for children and at entries, etc. Standing seam metal and concrete or clay tile are appropriate materials (Fig F-9-ee).



Fig F-9-ee

Miscellaneous Elements

Covered Walkways

Covered Walkways, when designed to be harmonious with or reflective of the surrounding architecture, are a good way to link community facilities visually and literally and to provide weather protection.

Porte-Cocheres

In Ft. Lewis' rainy climate, porte-cocheres should be considered for theatres, chapels and other buildings where large numbers of people arrive and leave at the same time.

Plazas and Courtyards

Pedestrian space such as plazas and courtyards are important to the success of Community Facilities and are critical in the Retail Core

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Community Center. Outdoor or semi-enclosed spaces to rest, eat, socialize, play or exercise should be provided and must be linked by a defined pedestrian circulation system (Fig F-9-ff).

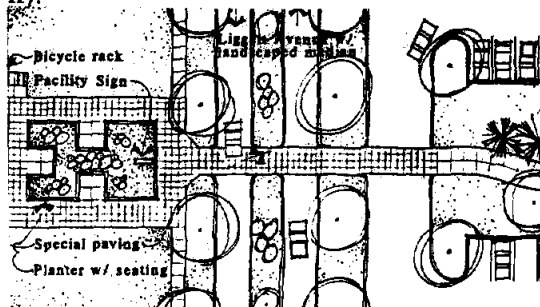


Fig F-9-ff

Mechanical Equipment

Mechanical equipment and other unsightly elements such as loading docks should be located away from pedestrian and parking areas and screened with landscaping or other means.

SECTION B

ZONAL APPLICATION

Zone VII - Medical Zone

Madigan Army Medical Center, Dental Clinics, Dispensaries

Visual Building Design Factors

Shape and Proportion

Proportion should be based on the Golden Rectangle.

Size, Massing and Scale

The scale of buildings in this zone (with the obvious exception of the new MAMC) should be human, but they should be massed to communicate their importance.

Surface Articulation

Since clinics and dispensaries tend to be relatively small buildings, articulation should primarily emphasize entries.

Texture

This element must be handled well because of the possible conflict that exists: smooth, clean looking textures are called for in a medical building but at the same time the building must not appear too machine or high-tech oriented. Textured material such as brick or split-face concrete masonry units should be used but

detailing should be very precise and "clean" (Fig F-9-gg).

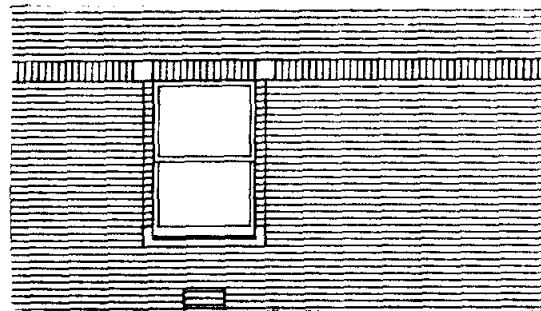


Fig F-9-gg

Rhythm

No unique requirements/guidance for this Zone.

Light & Shadow

No unique requirements/guidance for this Zone.

Expressions of Hierarchy

Clinics and dispensaries should generally reflect their status as an important support building, and should rank just below Battalion Headquarters on the hierarchal scale.

Style

Clinics and other small medical buildings should be styled to relate to their context but should emphasize the values of the Military Park Theme as demonstrated in the Garrison Area. Another possibility is to relate "satellite" building to the new Madigan Army Medical Center in detailing, color scheme, etc.

Building Components

Major Building Elements

Base

May be used to draw attention to the buildings and should contrast with rest of building.

Entrances

Should be "welcoming" and sheltering; pitched roofs (5/12) of metal or tile in color which contrasts with basic building are appropriate.

Walls

As stated in "Texture", walls should be of a medium texture material such as brick or split-face concrete masonry units with special attention to precise detailing.

Fenestration

Views out of waiting areas are desirable as is natural lighting through high wall windows in exam rooms, etc. to help prevent closed-in feelings in a possibly stressful situation.

Roof

Pitched roofs (5/12) of metal or clay or concrete tile in medium grey colors are generally appropriate on smaller buildings and at entries (Fig F-9-hh).

Miscellaneous Elements

Mechanical Equipment

Mechanical Equipment and dumpsters should

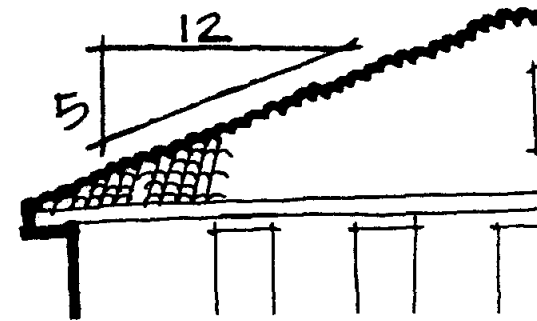


Fig F-9-hh

be located away from entries and screened from view with landscaping or other means.

SECTION B

ZONAL APPLICATION

Zone VIII - Open Space

Natural Areas, Developed Areas of Inactive and Active Uses

Visual Building Design Factors

Shape and Proportion

Proportions should follow the Golden Rectangle or be similar to those at the Old Main Gate (Fig F-9-ii).



Fig F-9-ii

Size, Massing and Scale

Most buildings in this zone will be small and should maintain a human scale.

Texture

A rustic, frontier texture shall predominate.

Style

All buildings located in this zone should be constructed in the "cobblestone and timber" style of the original Main and Madigan Gates and the service station west of the Garrison Area (Fig F-9-ij).

Exempted from this guideline are buildings located in parks or other open spaces which are integral parts of a cohesive, identifiable development. Such buildings should be designed to relate strongly to that development.

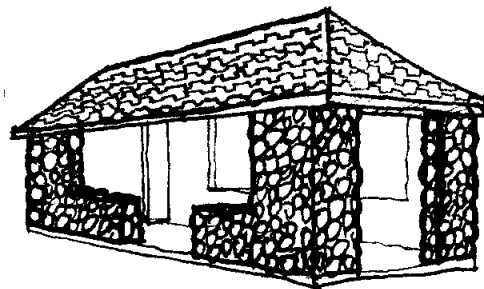


Fig F-9-ij

Building Components

Walls

Walls are to be of cobblestone or river rock similar to that found in the above mentioned buildings.

Roof

The roof will be the dominant element of most Zone VIII buildings. The standard should be a hip roof (5/12 pitch) with cedar shakes (preferably fire resistant).

Miscellaneous Elements

Plazas and Courtyards

Because of the outdoor, recreational use of most Zone VIII buildings, some outdoor paved space is probably called for at each building. These spaces should link the semi-enclosed buildings with the natural environment through paving materials and landscaping.

PART THREE-ZONE DISCUSSION
CHAPTER 9-BUILDING DESIGN CRITERIA

ATTACHMENT 10
PROGRESS COLLAPSE ANALYSIS GUIDELINES

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DEPARTMENT OF DEFENSE MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS

GUIDANCE ON STRUCTURAL REQUIREMENTS

30 September 2003

1. Scope. The following provides guidance for designers to use in implementing the structural requirements contained in paragraph B-2 of the DoD Minimum Antiterrorism Standards For Buildings (UFC 4-010-01) (hereinafter referred to as the UFC). This guidance may be used until more formal guidance is established in the DoD Security Engineering Manual.

2. Introduction. The intent of the requirements in paragraph B-2 is to build robustness into the structural systems of buildings three stories or more. This robustness is to prevent but not necessarily eliminate an inordinate amount of collapse of a structure due to a bombing event. The landmark event, from an AT/FP (Antiterrorism/Force Protection) perspective, that caused consideration for the prevention of collapse was the bombing of the A. P. Murrah Federal Building in Oklahoma City. The overwhelming cause of fatalities in that event was due to the progressive collapse of the building's structural elements.

3. Definitions. For the purpose of this guidance, the following definitions are used:

3.1. Three stories or more. Three stories or more includes structures with three or more above ground floors, or two story buildings with an exposed basement wall, as in a walkout basement. These three story or more structures will be referred to as multistory structures in this guidance.

3.2. Threat/risk analysis. The threat/risk analysis is performed in accordance with TM 5-853-1, Chapter 3 to define the design criteria to protect an asset. This analysis defines the design criteria and includes asset descriptions, aggressors, tactics, tools, weapons, explosives, and the levels of protection. The UFC defines the minimum measures the designer needs to consider for every inhabited building within DoD regardless of threat. When the designer has been given a threat/risk analysis, they need to use that as design criteria in addition to these UFC requirements.

4. Progressive Collapse Avoidance, UFC Standard 7, Paragraph B-2.1. A progressive collapse is the chain reaction of structural failures following damage to a relatively small portion of the structure. Therefore, damage resulting from a progressive collapse is out of proportion to the damage that initiated the collapse. The consequences of progressive collapse are unnecessary loss of life, and the trapping of survivors in the collapsed structure. Progressive collapse is considered a significant risk for multistory

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buildings. The superstructure for all new and existing inhabited buildings of multistory structures, are to be designed to sustain local damage while the structural system as a whole remains stable and not damaged to an extent disproportionate to the original local damage. This is achieved through an arrangement of structural elements that provides stability to the entire structural system by transferring loads from the locally damaged area to adjacent regions capable of resisting those loads without exceeding damage limits or collapsing. In order to prevent progressive collapse, the structure should have sufficient continuity, redundancy, or energy dissipating capacity (ductility, damping, hardness, etc.), or a combination thereof, in the members and connections of the structure. Further guidance is available in the American Society of Civil Engineers Standard (ASCE) 7-98, and will be provided in the future DoD Security Engineering Manual.

4.1. Design Approach. The sequences of events that occur during a potential progressive collapse event are diagrammed in Figure 1. However, there are two different approaches that can be used to obtain resistance to progressive collapse. These approaches are referred to as the “Direct design” and the “Indirect design” and are defined as follows:

4.1.1. Direct design is the explicit consideration of resistance to progressive collapse during the design process through either the “alternate load path method” or the “specific local resistance method”. The alternate load path method allows local failure to occur, but seeks to provide alternate load paths so that the damage is absorbed and major collapse is averted. The specific local resistance method seeks to provide sufficient strength to resist failure by defining a load for which the structure must be designed.

4.1.2. Indirect design is the implicit consideration of resistance to progressive collapse during the design process through the provision of minimum levels of strength, continuity, and ductility.

4.1.3. The guidance presented in this document adopts the alternate load path methodology of the direct design approach. Other methods may be included in the DoD Security Engineering Manual as appropriate. The primary objective of the progressive collapse analysis is to check the structure for alternative load paths after some elements are potentially lost through some abnormal loading, such as an explosive event. These alternative load paths are to provide sufficient damage tolerance to minimize the loss of life that might otherwise occur, and to allow for the safe egress of occupants from the damaged structure before collapse occurs.

4.2. Alternate Load Path Analysis Procedure. The progressive collapse analysis must be performed for all inhabited structures regardless of any other required load analyses (i.e., blast, seismic, wind, etc.). This procedure is performed using a 2D or 3D analysis of the structure. The structure is evaluated to determine how the structural loads are carried throughout the horizontal and vertical structural systems when either: one primary vertical or one primary horizontal structural element is removed, as required by

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Paragraph B-2.1.2, Exterior Member Removal. This should be performed at several representative locations throughout the structure. For inhabited structures where the threat/risk analysis indicates that there is no threat to the facility and therefore, only the DoD minimum standards apply, then removal of either the primary vertical or primary horizontal structural elements shall be limited to external building perimeter members as described below. Where the threat/risk analysis indicates only an external explosive threat, then removal of either the primary vertical or primary horizontal structural elements shall also be limited to external building perimeter members as described below. Where the threat/risk analysis indicates that there is an internal explosive threat, then removal of either the primary vertical or primary horizontal structural elements shall include the removal of primary internal structural elements as well as external structural elements. Dead and live loads associated with the removed elements shall be distributed to adjacent members or to the floor in the story below the removed elements. For the situation where the load will be distributed to the floor below, the load shall be increased to account for the impact of the falling load to the floor below. To determine the increase in load due to impact, the methodology provided in section C.5.3.3.5 of ASCE 7-98 may be used except the time interval used to decelerate the falling load shall be 0.1 seconds unless otherwise demonstrated to be different through test data. As an alternative, analytical techniques that use dynamic analysis may be used to account for impact. The progressive collapse analysis begins with the removal of the following structural elements:

4.2.1. Moment resisting frame systems. Remove only one column or one beam at any level within the structure for each analysis. Any in-fill walls that provide lateral support to the column or beam on either side of a removed column, or above a removed beam shall also be removed. For concrete construction, if a structural slab system (i.e., flat slab, waffle slab, etc.) is used (instead of beams), remove one full bay of the slab. In this case, a bay is defined as the area bounded by four columns.

4.2.2. Loadbearing wall systems. At any floor level, remove a width of wall horizontally equal to two times the wall height but no less than the distance between expansion or control joints. At any floor level at corners, remove a width of wall equal to the wall height in each direction horizontally, but no less than the distance between expansion or control joints. Wall height is defined as the vertical distance between horizontal supporting elements. The width of wall to be removed may be reduced to the actual distance between vertical intersecting elements that are loadbearing and are structurally connected to the wall being removed. For analyses that require the removal of internal members, the area of horizontal structural elements to be removed shall be equal in width to the width of wall removed and in depth, equal to the distance back to the first interior loadbearing element.

4.2.3. Braced frame systems. Initiate analysis by the removal of only one column, or one beam for each analysis as described for the moment resisting frame systems. Provide redundant bracing along a column line such that the loss of a column or beam along with one bay of bracing will not result in the collapse of the remaining

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portions of the building. Bracing may consist of cross members, knee braces or “K” braces.

4.2.4. Hybrid frame systems. For these structures, initiate the analysis by the removal of appropriate walls, columns, beams, or slabs using criteria provided in the discussion above for the different frame systems.

4.3. Methods of Analysis. With the appropriate member removed from the structure, perform a two- or three-dimensional static or dynamic linear elastic or non-linear structural analysis as indicated below.

4.3.1. For linear elastic methods, when the analysis indicates that the ultimate moment capacity of a member is exceeded, release the rotational degree of freedom for the member, insert a fixed resistant moment equal to the ultimate moment of the yielding member, and reanalyze the revised structure. If the shear capacity of a member is exceeded, the member is considered a failed member. A failed member must be removed from the model before proceeding with the remainder of the analysis. When a failed member is removed, any dead or live loads associated with the member must be accounted for by distribution to other members. This can be done by distributing the load to other members in the same story as the failed member or by adding the load of the failed member – including impact - to the members in the story below the failed member. Perform this analysis in an iterative manner until the structure stabilizes. If the analysis indicates that the structure will not stabilize, then progressive collapse occurs. This will require revision of the design before repeating the analysis procedure from the beginning.

4.3.2. For non-linear methods, only a single iteration of the analysis is required unless member shear capacity is exceeded or member response limits are exceeded. If member shear capacity or response limits are exceeded, the member is no longer considered capable of carrying load and is considered a failed member. Failed members shall be removed from the model before the remainder of the analysis can be performed. When a failed member is removed, any dead or live loads associated with the member must be accounted for by distribution to other members. This can be done by distributing the load to other members in the same story as the failed member or by adding the load – including impact - of the failed member to the members in the story below the failed member. If the analysis indicates that progressive collapse will occur, then revise the design as required, and repeat the analysis procedure from the beginning.

4.4. Limits of Damage. For buildings 3-stories or greater an acceptable level of damage resulting from the removal of the primary load carrying elements may extend into the story above and below the area where the member is being removed. For beam and column framed systems, the damage shall not extend horizontally to an area greater than one bay in any direction from a column unless the facility owner requires more stringent limits. For other systems, damage shall not extend horizontally outside an area greater than 750 sq. ft (70 m²) per floor or 15 percent of the floor area – whichever is

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less.¹ If the damage exceeds the allowable amount, revise the design and repeat the progressive collapse analysis procedure from the beginning.

4.5. Loading. To avoid an overly conservative analysis, reduce the assumed loading on the structure to what is reasonably expected as indicated below. Note that the design live load is reduced to one-half of the total anticipated value.

$$P = D + 0.5*L + 0.2*W$$

Where: D = design dead load,
 L = design live load, and
 W = design lateral wind load.

4.6. Material and Member Properties.

4.6.1. For concrete and steel, increase the strength of these materials to 10% above the specified design strength. This provides a realistic value of actual strengths in the materials. For masonry and wood, use the actual design strength without increase.

4.6.2. For all members in flexure, compression, torsion, and tension, use the nominal capacity, i.e., do not apply strength reduction (ϕ) factors. For all members in shear, evaluate by applying the appropriate strength reduction (ϕ) factors.

4.6.3. Note that increases in strength and the removal of strength reduction factors will result in increased member capacities but the designer must still verify that the increased member capacities are achievable through adequate bracing otherwise capacity must be reduced based upon the provided unbraced length of a member.

4.6. Connections. Connections shall develop the capacity of the weaker member being connected to ensure structural integrity is maintained. The structural capacity of the connected parts may be reduced when supported by analysis verifies the response limits shown in table-1 can be met. . In order to ensure ductility and reserve capacity in the connections, all seismic guidance located in TI 809-04 and TI 809-05 may be used, or guidance located within the DAHSCWE Manual (UFC 3-340-01) on connection ductility shall be incorporated.

4.7. Member Response Limits. Table 1 below provides the maximum allowable ductility and/or rotation limits for most structural members to limit the possibility of collapse. The values listed are for typical elements in conventional construction (i.e., construction that has not been hardened to resist an abnormal load such as an explosive event).

¹ See reference Lyendecker and Ellingwood

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Table 1. Structural Member Ductility and Rotation Limits

COMPONENT	DUCTILITY (m) ¹	ROTATION (q) ²	Notes
Reinforced Concrete (R/C) Beam ³		6-degrees	
R/C One-way Slabs w/o tension membrane ³		6-degrees	
R/C One-way Slabs w/ tension membrane ³		12-degrees	
R/C Two-way slabs w/o tension membrane ³		6-degrees	
R/C Two-way Slabs w/ tension membrane ³		12-degrees	
R/C Columns (tension controls) ³		6-degrees	
R/C Columns (compression controls)	1		
R/C Frames		2-degrees	Max sidesway H/25
Prestressed Beams	2		
Steel Beams	20	12-degrees	
Metal Stud Walls	7		
Open Web Steel Joist (based on flexural tensile stress in bottom chord)	6		
Metal Deck	20	12-degrees	
Steel Columns (tension controls)	20	12-degrees	
Steel Columns (compression controls)	1		
Steel Frames		2-degrees	Max sidesway H/25
One-way Unreinforced Masonry (unarched)	1		
One-way Unreinforced Masonry (compression membrane)	1		
Two-way Unreinforced Masonry (compression membrane)	1		
One-way reinforced Masonry		2-degrees	
Two-way Reinforced Masonry		2-degrees	
Masonry Pilasters (tension controls)		2-degrees	
Masonry Pilasters (compression controls)	1		
Wood Stud Walls	2		
Wood Trusses or Joist	2		
Wood Beams	2		
Wood Exterior Columns (bending)	2		
Wood Interior Columns (buckling)	1		
Notes for Table 1. 1. Ductility is defined as the ratio of ultimate deflection to elastic deflection (Xu/Xe). 2. Rotation for members or frames can be determined using Figures 2 and 3 provided below. 3. Concrete having more than 2-degrees rotation must include shear stirrups per requirements of DAHSCWE Manual.			

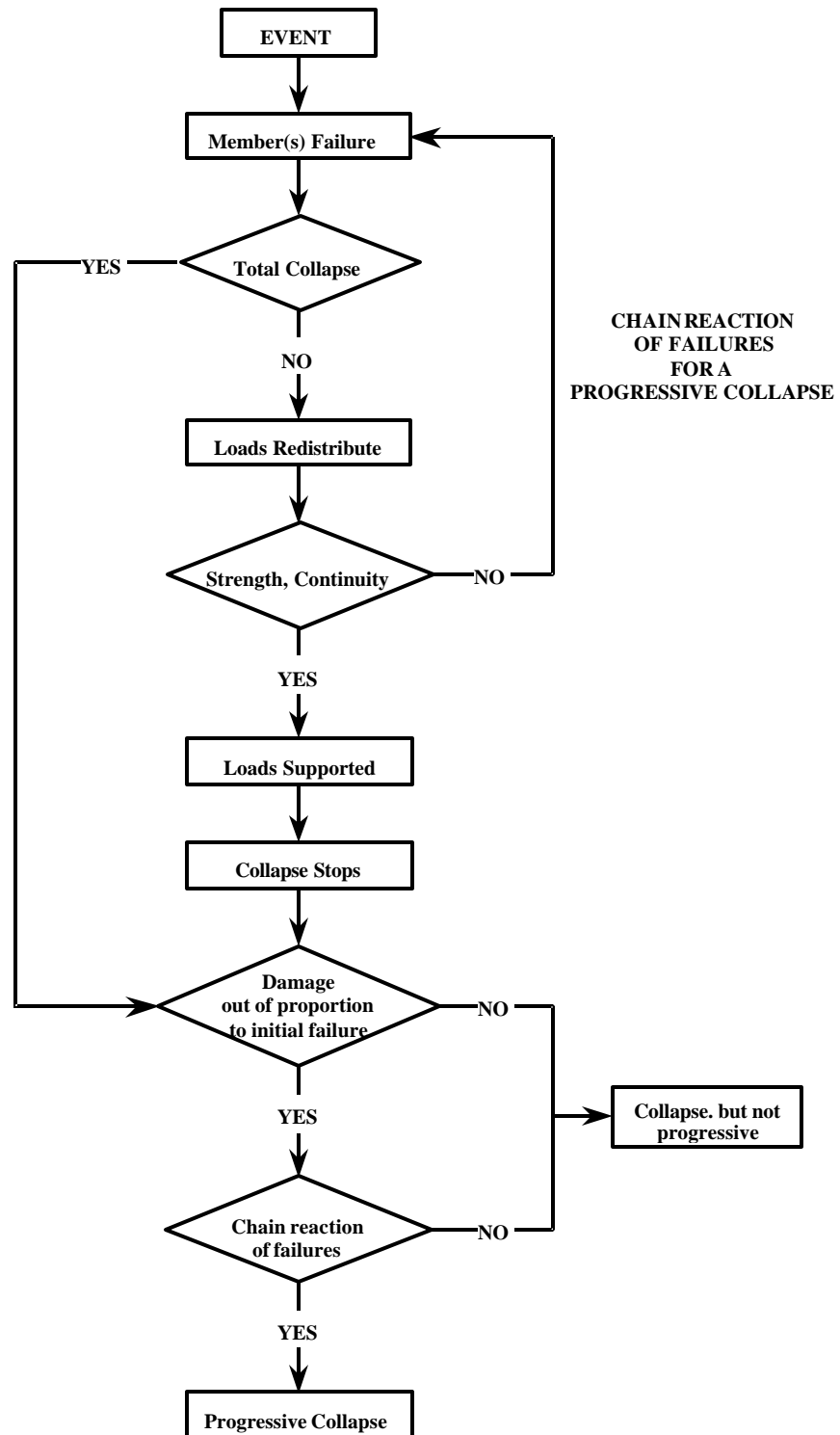


Figure 1. Progressive Collapse Flowchart

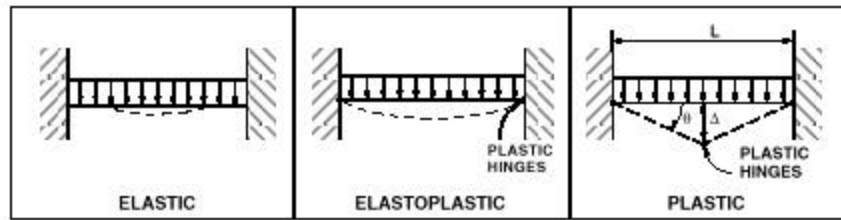


Figure 2. Measurement of q After Formation of Plastic Hinges

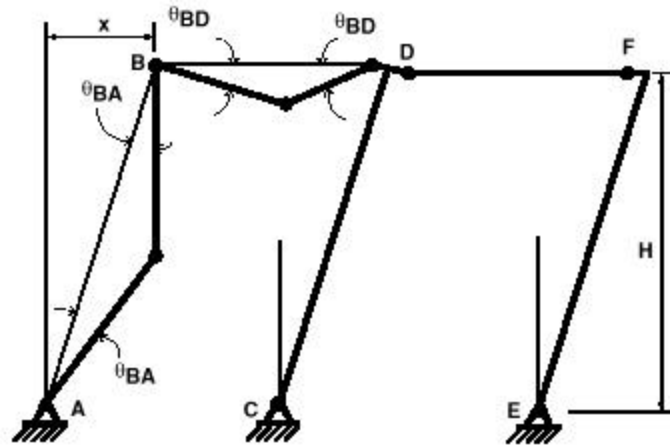


Figure 3. Sidesway and Member End Rotations (q) for Frames

4.8. Columns and Walls, UFC Standard 7, Paragraph B-2.1.1. This paragraph states “Design all exterior vertical load-carrying columns and walls to sustain a loss of lateral support at any of the floor levels by adding one story height to the nominal unsupported length. While this standard is based on the assumption of an external threat, where parking beneath buildings is unavoidable, this provision also applies to internal vertical load carrying columns and walls.” The loads and material properties in paragraphs 4.5 and 4.6 above shall be used in this analysis. Loads can be assumed to be only applied from the roof and floor levels which remain.

4.9. Exterior Member Removal, UFC Standard 7, Paragraph B-2.1.2. This paragraph requires the alternate load path method described above.

4.10. Floors, UFC Standard 7, Paragraph B-2.1.3. All floors, including interior bays and upper level floors are to be designed for the uplift load indicated. Increased material strengths are to be used with no load factors.

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5. Structural Isolation, UFC Standard 8, Paragraph B-2.2. The two paragraphs in this section give the designer the choice of isolating additions to buildings from existing inhabited structures, or analyzing the existing inhabited structure to ensure that collapse of the new structure does not endanger the existing structures inhabitants.

6. Building Overhangs, UFC Standard 9, Paragraph B-2.3. This section advises against using building overhangs and has three requirements that must be met if they are used. The goal is to provide an equivalent level of protection for inhabitants of a vulnerable overhang.

6.1. Paragraph B-2.3.1. Parking and roadways are not allowed beneath overhangs to reduce the likelihood of a vehicle bomb being located there

6.2. Paragraph B-2.3.2. Floors are to be designed for the specified vehicle bomb beneath them, even if parking and roads are not beneath the overhang.

6.3. Paragraph B-2.3.3. Superstructure. Because an overhang is more susceptible to collapse, an analysis for progressive collapse has to be done, even for two story structures.

7. Exterior Masonry Walls, UFC Standard 10, Paragraph B-2.4. This paragraph requires a minimum amount of reinforcing in new exterior walls of buildings meeting the standoff requirements. For existing facilities, and for buildings not meeting site standoff requirements, it is required to perform a blast analysis and design to obtain equivalent protection.

8. References:

8.1. ASCE 7-98. *Minimum Design Loads for Buildings and Other Structures*, 2000.

8.2. Conrath, Edward J., et al. *Structural Design for Physical Security, State of the Practice*. American Society of Civil Engineers, Reston, VA. 1999.

8.3. Ellingwood, Bruce and E.V. Leyendecker. "Approaches of Design Against Progressive Collapse." *Journal of the Structural Division*, Proceedings of the American Society of Civil Engineers, Vol. 104, No. ST3. March 1978.

8.4. Hinmann, Eve E. and David J. Hammond. *Lessons From the Oklahoma City Bombing, Defensive Design Techniques*. American Society of Civil Engineers, New York. 1997.

8.5. Leyendecker, Edgar V. and Bruce R. Ellingwood. *Design Methods for Reducing the Risks of Progressive Collapse in Buildings*. National Bureau of Standards, Washington, DC, Apr 1977.

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8.6. Protective Design – Mandatory Center of Expertise Technical Report 92-2, *Facility And Component Explosive Damage Assessment Program (FACEDAP) – Theory Manual – Version 1.2*, SwRI Project No. 0605145-001, Modified May 1994.

8.7. TI 809-04, Seismic Design Buildings, 31 December 1998.

8.8. TI 809-05, Seismic Evaluation and Rehabilitation for Buildings, November 1999.

8.9. TM 5-853-1, Security Engineering Project Development, 12 May 1994.

8.10. UFC 3-340-01, *Design and Analysis of Hardened Structures to Conventional Weapons Effects* (June 2002).

8.11. UFC 4-010-01, DoD Minimum Antiterrorism Standards, 31 July 2002.

9. Point of Contact. This guidance is anticipated to be incorporated into the DoD series of Manuals on Security Engineering. Until that time, it is only guidance and not mandatory. Should you have comments or concerns about the guidance, please contact Ed Conrath by phone at (402)221-3152 or via e-mail at ed.j.conrath@usace.army.mil.

ATTACHMENT 11
LIST OF RFP DRAWINGS

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SHEET NO.	PLATE NO.	TITLE
GENERAL		
	G1.1	TITLE & AREA MAPS
CIVIL (Attachment 1) Echo Block Development		
	C101	NORTH FORT SITE PLAN
	C102	GENERAL SITE PLAN
	C103	SITE PLAN
	C104	UTILITY PLAN
	C105	PROPANE TANK FARM SITE PLAN
CIVIL (Attachment 1) Alpha Block Development		
	C106	DEMOLITION PLAN
	C107	SITE PLAN 1
	C108	SITE PLAN 2
	C109	UTILITY PLAN
	C110	PROPANE TANK FARM SITE PLAN
	C111	CIVIL DETAILS
LANDSCAPE ARCHITECTURE (Attachment 1)		
	L101	GENERAL LANDSCAPE CONCEPTS
	L102	SUMMARY IRRIGATION PLAN
	L103	IRRIGATION DETAILS
MECHANICAL (Attachment 1) Echo Block Development		
	M101	PROPANE SYSTEM SITE PLAN
	M102	PROPANE/AIR SYSTEM LAYOUT
	M103	PIPING DIAGRAM
	M104	VAPORIZER AND MIXER SCHEMATIC
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	M106	PROPANE/AIR SYSTEM LAYOUT
ELECTRICAL (Attachment 1) Echo Block Development		
	E101	ELECTRICAL SITE PLAN
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	E103	ELECTRICAL SITE PLAN 1
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FY02 BARRACKS & SOLDIER COMMUNITY BUILDINGS (SCB) (Attachment 2)		
	A101	COMPOSITE FIRST FLOOR PLAN
	A102	NW PARTIAL FIRST FLOOR PLAN
	A103	SCB FLOOR PLAN

SHEET NO.	PLATE NO.	TITLE
ARCHITECTURAL (Attachment 2) “CONTINUED”		

FY02 BARRACKS & SOLDIER COMMUNITY BUILDINGS (SCB) (Attachment 2)

A104	NORTH AND SOUTH ELEVATIONS
A105	EAST AND WEST ELEVATIONS
A106	MODULE PLANS

FY03 BARRACKS & SOLDIER COMMUNITY BUILDINGS (SCB) (Attachment 2)

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A108	BARRACK B (NORTH)-FIRST FLOOR PLAN
A109	SCB (NORTH)-FLOOR PLAN
A110	BARRACK B (NORTH)-NORTH & SOUTH ELEVATIONS
A111	BARRACK B (NORTH)-EAST & WEST ELEVATIONS
A112	ENLARGED PLANS - MODULE CLUSTERS
A113	EXTERIOR DETAILS

ECHO BLOCK - LARGE COMPANY OPS FACILITY (Attachment 3)

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A302	SECOND FLOOR PLAN
A303	ELEVATIONS I - NORTH & SOUTH
A304	ELEVATIONS II

ECHO BLOCK - LARGE BATTALION HEADQUARTERS (Attachment 4)

A401	FIRST FLOOR PLAN
A402	SECOND FLOOR PLAN
A403	ROOF PLAN
A404	EXTERIOR ELEVATIONS
A405	FIRST FLOOR PLAN
A406	SECOND FLOOR PLAN

FY03 LAWNMOWER STORAGE BUILDING (Attachment 5)

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ATTACHMENT 12
FORCE PROTECTION CRITERIA

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UNIFIED FACILITIES CRITERIA (UFC)

DoD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS



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UNIFIED FACILITIES CRITERIA (UFC)

DoD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS

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UNDER SECRETARY OF DEFENSE (ACQUISITION, TECHNOLOGY, AND
LOGISTICS) (Preparing Activity)

J3, DEPUTY DIRECTORATE FOR ANTITERRORISM AND FORCE PROTECTION,
JOINT CHIEFS OF STAFF

U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Record of Changes (changes are indicated by \1\ ... /1/)

Change No.	Date	Location

**This UFC supersedes Interim Department of Defense Antiterrorism / Force
Protection Construction Standards of 16 December 1999, except that the Interim
Standard will remain in effect for fiscal year 2002 and 2003 Military Construction
Programs.**

FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with [USD\(AT&L\) Memorandum](#) dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate.

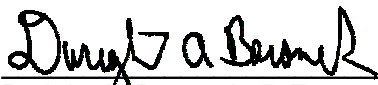
UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Support Agency (AFCESA) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request \(CCR\)](#). The form is also accessible from the Internet sites listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following sources:

- Unified Facilities Criteria (UFC) Index http://65.204.17.188/report/doc_ufc.html.
- USACE TECHINFO Internet site <http://www.hnd.usace.army.mil/techinfo>.
- NAVFAC Engineering Innovation and Criteria Office Internet site <http://criteria.navfac.navy.mil>.
- Construction Criteria Base (CCB) system maintained by the National Institute of Building Sciences at Internet site <http://www.ccb.org>.

Hard copies of UFC printed from electronic media should be checked against the current electronic version prior to use to ensure that they are current.

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FOREWORD (continued)

This specific document is also issued under the authority of DoD Instruction Number 2000.16, *DoD Antiterrorism Standards* which requires DoD Components to adopt and adhere to common criteria and minimum construction standards to mitigate antiterrorism vulnerabilities and terrorist threats.

This document applies to the Office of the Secretary of Defense (OSD); the Military Departments (including their National Guard and Reserve Components); the Chairman, Joint Chiefs of Staff and Joint Staff; the Combatant Commands; the Office of the Inspector General of the Department of Defense; the Defense Agencies; the Department of Defense Field Activities; and all other organizational entities within the Department of Defense hereafter referred to collectively as “the DoD Components.”

The standards established by this document are minimums set for DoD. Each DoD Component may set more stringent antiterrorism building standards to meet the specific threats in its area of responsibility.

Any changes, updates, or amendments to this particular UFC must have the approval of the DoD Engineering Senior Executive Panel (ESEP).

This document is effective immediately and is mandatory for use by all the DoD Components.

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CHAPTER 1

INTRODUCTION

1-1 **GENERAL.** This document represents a significant commitment by DoD to seek effective ways to minimize the likelihood of mass casualties from terrorist attacks against DoD personnel in the buildings in which they work and live.

1-1.1 **Dynamic Threat Environment.** Terrorism is real, evolving, and continues to increase in frequency and lethality throughout the world. The unyielding, tenacious, and patient nature of the terrorists targeting DoD interests forces us to closely examine existing policies and practices for deterring, disrupting, and mitigating potential attacks. Today, terrorist attacks can impact anyone, at any time, at any location, and can take many forms. Deterrence against terrorist attacks begins with properly trained and equipped DoD personnel employing effective procedures. While terrorists have many tactics available to them, they frequently use explosive devices when they target large numbers of DoD personnel. Most existing DoD buildings offer little protection from terrorist attacks. By applying the Minimum Antiterrorism Standards for Buildings described in this document, we become a lesser target of opportunity for terrorists.

1-1.2 **Responsibility.** Protecting people on a DoD installation or site must start with an understanding of the risk of a terrorist attack. Application of the standards herein should be consistent with the perceived or identified risk. Everyone in DoD is responsible for protecting our people and other resources.

1-1.2.1 **Individuals.** Each DoD employee, contractor, or vendor is responsible for minimizing opportunities for terrorists to threaten or target themselves, their co-workers, and their families on DoD installations or sites.

1-1.2.2 **Installation Commanders.** The installation commander must protect the people on his/her installation, or site, by managing and mitigating the risk to those people in the event of a terrorist attack. The installation commander is responsible for applying the standards herein, consistent with the identified or perceived risk of DoD people being hurt or killed.

1-1.2.3 **Service Secretaries and Agency Heads.** The heads of DoD Components shall ensure compliance and issue guidance to implement these standards. That guidance will include direction to require the installation commander to notify or seek approval from a major command or claimant or higher headquarters level if a new construction or renovation project, or a leased facility, will not meet any one or more of the standards. Heads of DoD Components will establish plans and procedures to mitigate risks in such situations.

1-1.3 **Planning and Integration.** When the best procedures, proper training, and appropriate equipment fail to deter terrorist attacks, adherence to these standards goes far in mitigating the possibility of mass casualties from terrorist attacks against DoD personnel in the buildings in which they work and live. Although predicting the specific threat to everyone is not possible, proper planning and integration of those plans provides a solid foundation for preventing, and if necessary reacting, when

terrorist incidents or other emergencies unfold. An effective planning process facilitates the necessary decision making, clarifies roles and responsibilities, and ensures support actions generally go as planned. A team consisting of the chain of command and key personnel from all appropriate functional areas who have an interest in the building and its operation executes this planning process. The team should include, as a minimum, antiterrorism/force protection, intelligence, security, and facility engineering personnel. This team is responsible for identifying requirements for the project, facilitating the development of supporting operational procedures, obtaining adequate resources, and properly supporting all other efforts needed to prudently enhance protection of the occupants of every inhabited DoD building. For further information on planning and integration, refer to the *DoD Security Engineering Manual*.

1-2 REFERENCES.

- Interim Department of Defense Antiterrorism / Force Protection Construction Standards, December 16, 1999 (hereby cancelled)
- DoD Instruction 2000.16, DoD Antiterrorism Standards, June 14, 2001.
- DoD Handbook 2000.12-H, Protection of DoD Personnel and Activities Against Acts of Terrorism and Political Turbulence, February 1993
- American Society of Civil Engineers Standard (ANSI/ASCE) 7-98, Minimum Design Loads for Buildings and Other Structures, January 2000
- Unified Facilities Criteria (UFC) 4-010-02, *DoD Security Engineering Manual*, (Draft)
- Unified Facilities Criteria (UFC) 4-010-10, *DoD Minimum Antiterrorism Standoff Distances for Buildings; (For Official Use Only (FOUO))*
- Sections 2805(a)(1) and 2805(c)(1) of Title 10, US Code
- Security Engineering Working Group web site (<http://sewg.nwo.usace.army.mil>)
- DoD 6055.9-STD, DoD Ammunition and Explosive Safety Standards, July 1999

1-3 **STANDARDS AND RECOMMENDATIONS.** Mandatory DoD minimum antiterrorism standards for new and existing inhabited buildings are contained in Appendix B. Additional recommended measures for new and existing inhabited buildings are included in Appendix C. Mandatory DoD minimum antiterrorism standards for expeditionary and temporary structures are contained in Appendix D.

1-4 **INTENT.** The intent of these standards is to minimize the possibility of mass casualties in buildings or portions of buildings owned, leased, privatized, or otherwise occupied, managed, or controlled by or for DoD. These standards provide appropriate, implementable, and enforceable measures to establish a level of protection

against terrorist attacks for all inhabited DoD buildings where no known threat of terrorist activity currently exists. While complete protection against all potential threats for every inhabited building is cost prohibitive, the intent of these standards can be achieved through prudent master planning, real estate acquisition, and design and construction practices. Where the minimum standoff distances detailed in these standards are met, most conventional construction techniques can be used with only marginal impact on the total construction or renovation cost. The financial impact of these standards will be significantly less than the economic and intangible costs of a mass casualty event.

1-5 **LEVELS OF PROTECTION.** The levels of protection provided by these standards meet the intent described above and establish a foundation for the rapid application of additional protective measures in a higher threat environment. These standards may be supplemented where specific terrorist threats are identified, where more stringent local standards apply, or where local commanders dictate additional measures. Detailed descriptions of the levels of protection are provided in Chapter 2 and the *DoD Security Engineering Manual*.

1-5.1 **DoD Component Standards.** Where DoD Component standards such as geographic Combatant Commander standards address unique requirements, those standards will be incorporated in accordance with their implementing directives, but not to the exclusion of these standards.

1-5.2 **Threat-Specific Requirements.** Where a design basis threat is identified whose mitigation requires protective measures beyond those required by these standards or DoD Component standards, those measures will be developed in accordance with the provisions of the *DoD Security Engineering Manual*. The provisions of the *DoD Security Engineering Manual* include the design criteria that will be the basis for the development of the protective measures, estimates of the costs of those measures, and detailed guidance for developing the measures required to mitigate the identified threat. The design criteria include the assets to be protected, the threat to those assets, and the desired level of protection. Use of the *DoD Security Engineering Manual* will ensure uniform application, development, and cost estimation of protective measures throughout DoD.

1-5.3 **Critical Facilities.** Buildings that must remain mission operational during periods of national crisis and/or if subjected to terrorist attack should be designed to significantly higher levels of protection than those provided by these standards.

1-5.4 **Explosive Safety Standards.** These antiterrorism standards establish criteria to minimize the potential for mass casualties and progressive collapse from a terrorist attack. DoD 6055.9-STD, *DoD Ammunition and Explosive Safety Standards* as implemented by Service component explosive safety standards, establish acceptable levels of protection for accidental explosions of DoD-titled munitions. The explosive safety and antiterrorism standards address hazards associated with unique events; therefore, they specify different levels of protection. Compliance with both standards is required. Where conflicts arise, the more stringent criteria will govern.

1-6 **APPLICABILITY.** These standards apply to all DoD Components, to all DoD inhabited buildings, and to all DoD expeditionary and temporary structures in accordance with the following:

1-6.1 **New Construction.** Implementation of these standards is mandatory for all new construction regardless of funding source in accordance with the following:

1-6.1.1 **Military Construction (MILCON).** These standards apply to MILCON projects starting with the Fiscal Year 2004 Program. Projects programmed or designed under the Interim DoD Antiterrorism / Force Protection Construction Standards do not have to be reprogrammed or redesigned to meet the requirements of these standards. The provisions of the Interim Standards will apply to those projects. Due to minor changes between these standards and the Interim Standards, projects prior to the Fiscal Year 2004 Program should comply with these standards where possible.

1-6.1.2 **Host-Nation And Other Foreign Government Funding.** These standards apply to new construction funded under host-nation agreements or from other funding sources starting in Fiscal Year 2004 or as soon as negotiations with the foreign governments can be completed.

1-6.1.3 **Other Funding Sources.** These standards apply to all new construction projects funded by sources other than MILCON (such as Non-Appropriated Funds, Operations and Maintenance, and Working Capital Funds) starting with Fiscal Year 2004. Projects funded prior to that fiscal year should comply with these standards where possible.

1-6.2 **Existing Buildings.** These standards will apply to existing facilities starting with the Fiscal Year 2004 program when triggered as specified below, regardless of funding source. Projects funded prior to that fiscal year should comply with these standards where possible. For existing leased buildings see paragraph 1-6.4.

1-6.2.1 **Major Investments.** Implementation of these standards to bring an entire building into compliance is mandatory for all DoD building renovations, modifications, repairs, and restorations where those costs exceed 50% of the replacement cost of the building except as otherwise stated in these standards. The 50% cost is exclusive of the costs identified to meet these standards. Where the 50% threshold is not met, compliance with these standards is recommended.

1-6.2.2 **Conversion of Use.** Implementation of these standards is mandatory when any portion of a building is modified from its current use to that of an inhabited building, billeting, or a primary gathering building for one year or more. Examples would include a warehouse (uninhabited) being converted to administrative (inhabited) use and an inhabited administrative building being converted to a primary gathering building or billeting.

1-6.2.3 **Glazing Replacement.** Because of the significance of glazing hazards in a blast environment, implementation of the glazing provisions of these standards is mandatory for existing inhabited buildings within any planned window or door glazing

replacement project. Such replacements may require window frame modification or replacement.

1-6.3 **Building Additions.** Additions to existing inhabited buildings shall comply with the minimum standards for new buildings. If the addition is 50% or more of the gross area of the existing building, the existing building shall comply with the minimum standards for existing buildings.

1-6.4 **Leased Buildings.** DoD personnel occupying leased buildings deserve the same level of protection as those in DoD-owned buildings. Implementation of these standards is therefore mandatory for all facilities leased for DoD use and for those buildings in which DoD receives a space assignment from another government agency except as established below. This requirement is intended to cover all situations, including General Services Administration space, privatized buildings, and host-nation and other foreign government buildings. This requirement is applicable for all new leases executed on or after 1 October 2005 and to renewal or extension of any existing lease on or after 1 October 2009. Leases executed prior to the above fiscal years will comply with these standards where possible.

1-6.4.1 **Partial Occupancy.** These standards only apply where DoD personnel occupy leased or assigned space constituting at least 25% of the net interior useable area or the area as defined in the lease, and they only apply to that portion of the building that is occupied by DoD personnel.

1-6.4.2 **New Buildings.** Buildings that are built to lease to DoD as of the effective date established above shall comply with the standards for new construction.

1-6.4.3 **Existing Buildings.** New leases or renewals of leases of existing buildings will trigger the minimum standards for existing buildings in accordance with the effective dates established above.

1-6.5 **Expeditionary and Temporary Structures.** Implementation of these standards is mandatory for all expeditionary and temporary structures that meet the occupancy criteria for inhabited or primary gathering buildings or billeting. See Appendix D for structure types that meet the expeditionary and temporary structures criteria.

1-6.5.1 **New Structures.** These standards apply to all new expeditionary sites effective immediately.

1-6.5.2 **Existing Structures.** These standards will apply to all existing expeditionary activities beginning in Fiscal Year 2004. Prior to that fiscal year, existing expeditionary structures should comply with these standards where possible.

1-6.6 **National Guard Buildings.** Any National Guard building that uses Federal funding for new construction, renovations, modifications, repairs, restorations, or leasing and that meets the applicability provisions above, will comply with these standards.

1-6.7 **Exemptions.** Unless DoD Components dictate otherwise, the following buildings are exempt from requirements of these standards as specified below. However, compliance with these standards for those buildings is recommended where possible. In addition, there are some exemptions to elements of individual standards that are included in the text of those standards in appendix B. The rationale for all exemptions is detailed in chapter 2.

1-6.7.1 **Family Housing With 12 Units Or Fewer Per Building.** These buildings are exempt from all provisions of these standards.

1-6.7.2 **Stand-Alone Franchised Food Operations.** These buildings are exempt from standoff distances to parking and roadways. All other standards apply.

1-6.7.3 **Stand Alone Shoppettes, Mini Marts And Similarly Sized Commissaries.** These buildings are exempt from standoff distances to parking and roadways. All other standards apply.

1-6.7.4 **Gas Stations And Car Care Centers.** These facilities are exempt from all provisions of these standards.

1-6.7.5 **Medical Transitional Structures And Spaces.** These structures are exempt from standoff distances to parking and roadways. All other standards apply.

1-6.7.6 **Other Transitional Structures And Spaces.** Transitional structures and spaces that will be occupied for less than one year and that are not billeting, primary gathering buildings, or medical transitional structures, are exempt from standoff distances to parking and roadways. All other standards apply.

1-6.7.7 **Recruiting Stations In Leased Spaces.** Recruiting stations located in leased spaces are exempt from all provisions of these standards.

1-7 **PROGRAMMING.**

1-7.1 **Documentation.** The inclusion of these standards into DoD construction or the inclusion of protective measures above the requirements of these standards will be incorporated into the appropriate construction programming documents (such as the DD Form 1391) in accordance with DoD Component guidance. Refer to the *DoD Security Engineering Manual* for guidance on the costs for implementing these standards and for providing protective measures beyond these standards.

1-7.2 **Funding Thresholds.** For existing buildings, these standards are intended solely to correct design deficiencies to appropriately address emergent life-threatening terrorist risks. As a result, funding thresholds for Unspecified Minor Military Construction and Operations and Maintenance funding may be increased in accordance with 10 USC Sections 2805(a)(1) and 2805 (c)(1).

1-8 **INFORMATION SENSITIVITY.** Some information in these standards is exempt from mandatory disclosure under the Freedom of Information Act. The sensitive information that is exempt is the explosive weights upon which the minimum standoff

distances are based, which is included in UFC 4-010-10. Allowing potential aggressors to know the minimum explosive weights that all DoD inhabited buildings are designed to resist could constitute a vulnerability. To minimize the possibility of that information being used against DoD personnel, the following provisions apply:

1-8.1 **Distribution.** Follow governing DoD and Component guidance for specific requirements for handling and distribution of For Official Use Only information. In general, distribution of this document is unlimited. Distribution of the tables (Tables 1 and 2) in UFC 4-010-10 is authorized only to U.S. Government agencies and their contractors. In addition, where it is within Status of Forces Agreements (SOFA) or other similar information exchange agreements, the information in these standards may be distributed to host-nation elements for the purposes of their administration and design of host-nation funded or designed construction.

1-8.2 **Posting To The Internet.** This document may be posted freely to the Internet; however, because the tables (Tables 1 and 2) in UFC 4-010-10 are For Official Use Only they cannot be posted to any web site that is accessible to the general public. In addition, other documents that include information from these standards that are identified as For Official Use Only cannot be posted to web sites accessible to the general public. For Official Use Only information may be posted to protected, non-publicly accessible web sites that comply with standards established by DoD for administration of web sites.

1-8.3 **Plans and Specifications.** Construction plans and specifications should include only that information from this document that is necessary for a contractor to develop a bid on a project. The explosive weights used in these standards shall not be entered into the plans and specifications unless the plans and specifications are properly safeguarded. Plans and specifications may be posted to the Internet in accordance with existing DoD Component guidance, but such documents will not include For Official Use Only information. All plans and specifications for inhabited buildings shall include an annotation that cites the version of these standards that was used for design.

1-8.4 **Design – Build Contracts.** Where design – build contracts are employed, prospective contractors will be responsible for developing a design proposal for that project that may be impacted by provisions of these standards. Where that is the case, consider alternate means to provide sufficient information to support their proposals. Consider for example, either specifying specific design loads or specifying the required standoff distance and providing candidate structural systems that would allow for mitigation of the applicable explosive if that standoff was less than the minimum. Once the design – build contract is awarded the contractor will be eligible to receive this complete document for use in the development of the final design package, but that contractor will be responsible for protecting the integrity of the information throughout the contract and through any subcontracts into which that contractor might enter.

1-9 **Interim Design Guidance.** The *DoD Security Engineering Manual* is currently unpublished. In lieu of referring to the *DoD Security Engineering Manual*, please see the guidance provided on the Security Engineering Working Group website.

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CHAPTER 2

PHILOSOPHY, DESIGN STRATEGIES, AND ASSUMPTIONS

2-1 **GENERAL.** The purpose of this chapter is to clarify the philosophy on which these standards are based, the design strategies that are their foundation, and the assumptions inherent in their provisions. Effective implementation of these standards depends on a reasonable understanding of the rationale for them. With this understanding, engineers and security and antiterrorism personnel can maximize the efficiency of their solutions for complying with these standards while considering site-specific issues and constraints that might dictate measures beyond these minimums.

2-2 **PHILOSOPHY.** The overarching philosophy upon which this document is based is that comprehensive protection against the range of possible threats may be cost prohibitive, but that an appropriate level of protection can be provided for all DoD personnel at a reasonable cost. That level of protection is intended to lessen the risk of mass casualties resulting from terrorist attacks. Full implementation of these standards will provide some protection against all threats and will significantly reduce injuries and fatalities for the threats upon which these standards are based. The costs associated with those levels of protection are assumed to be less than the physical and intangible costs associated with incurring mass casualties. Furthermore, given what we know about terrorism, all DoD decision makers must commit to making smarter investments with our scarce resources and stop investing money in inadequate buildings that DoD personnel will have to occupy for decades, regardless of the threat environment. There are three key elements of this philosophy that influence the implementation of these standards.

2-2.1 **Time.** Protective measures needed to provide the appropriate level of protection must be in place prior to the initiation of a terrorist attack. Incorporating those measures into DoD buildings is least expensive at the time those buildings are either being constructed or are undergoing major renovation, repair, restoration, or modification.

2-2.2 **Master Planning.** Many of these standards significantly impact master planning. The most significant such impact will be in standoff distances. If standoff distances are not “reserved” they will be encroached upon and will not be available should they become necessary in a higher threat environment. The master planning implications of these standards are not intended to be resolved overnight. They should be considered to be a blueprint for facilities and installations that will be implemented over decades as those facilities and installations evolve.

2-2.3 **Design Practices.** The philosophy of these standards is to build greater resistance to terrorist attack into all inhabited buildings. That philosophy affects the general practice of designing inhabited buildings. While these standards are not based on a known threat, they are intended to provide the easiest and most economical methods to minimize injuries and fatalities in the event of a terrorist attack. The primary methods to achieve this outcome are to maximize standoff distance, to construct superstructures to avoid progressive collapse, and to reduce flying debris hazards.

These and related design issues are intended to be incorporated into standard design practice in the future.

2-3 **DESIGN STRATEGIES.** There are several major design strategies that are applied throughout these standards. They do not account for all of the measures considered in these standards, but they are the most effective and economical in protecting DoD personnel from terrorist attacks. These strategies are summarized below.

2-3.1 **Maximize Standoff Distance.** The primary design strategy is to keep terrorists as far away from inhabited DoD buildings as possible. The easiest and least costly opportunity for achieving the appropriate levels of protection against terrorist threats is to incorporate sufficient standoff distance into project designs. While sufficient standoff distance is not always available to provide the minimum standoff distances required for conventional construction, maximizing the available standoff distance always results in the most cost-effective solution. Maximizing standoff distance also ensures that there is opportunity in the future to upgrade buildings to meet increased threats or to accommodate higher levels of protection.

2-3.2 **Prevent Building Collapse.** Provisions relating to preventing building collapse and building component failure are essential to effectively protecting building occupants, especially from fatalities. Designing those provisions into buildings during new construction or retrofitting during major renovations, repairs, restorations, or modifications of existing buildings is the most cost effective time to do that. In addition, structural systems that provide greater continuity and redundancy among structural components will help limit collapse in the event of severe structural damage from unpredictable terrorist acts.

2-3.3 **Minimize Hazardous Flying Debris.** In past explosive events where there was no building collapse, a high number of injuries resulted from flying glass fragments and debris from walls, ceilings, and fixtures (non-structural features). Flying debris can be minimized through building design and avoidance of certain building materials and construction techniques. The glass used in most windows breaks at very low blast pressures, resulting in hazardous, dagger-like shards. Minimizing those hazards through reduction in window numbers and sizes and through enhanced window construction has a major effect on limiting mass casualties. Window and door designs must treat glazing, frames, connections, and the structural components to which they are attached as an integrated system. Hazardous fragments may also include secondary debris such as those from barriers and site furnishings.

2-3.4 **Provide Effective Building Layout.** Effective design of building layout and orientation can significantly reduce opportunities for terrorists to target building occupants or injure large numbers of people.

2-3.5 **Limit Airborne Contamination.** Effective design of heating, ventilation, and air conditioning (HVAC) systems can significantly reduce the potential for chemical, biological, and radiological agents being distributed throughout buildings.

2-3.6 **Provide Mass Notification.** Providing a timely means to notify building occupants of threats and what should be done in response to those threats reduces the risk of mass casualties.

2-3.7 **Facilitate Future Upgrades.** Many of the provisions of these standards facilitate opportunities to upgrade building protective measures in the future if the threat environment changes.

2-4 **ASSUMPTIONS.** Several assumptions form the foundation for these standards.

2-4.1 **Baseline Threat.** The location, size, and nature of terrorist threats are unpredictable. These standards are based on a specific range of assumed threats that provides a reasonable baseline for the design of all inhabited DoD buildings. Designing to resist baseline threats will provide general protection today and will establish a foundation upon which to build additional measures where justified by higher threats or where the threat environment increases in the future. While those baseline threats are less than some of the terrorist attacks that have been directed against U.S. personnel in the past, they represent more severe threats than a significant majority of historical attacks. It would be cost prohibitive to provide protection against the worst-case scenario in every building. The terrorist threats addressed in these standards are further assumed to be directed against DoD personnel. Threats to other assets and critical infrastructure are beyond the scope of these standards, but they are addressed in the *DoD Security Engineering Manual*. The following are the terrorist tactics upon which these standards are based:

2-4.1.1 **Explosives.** The baseline explosive weights are identified in Tables B-1 and D-1 as explosive weights I, II, and III. Their means of delivery are discussed below.

2-4.1.1.1 **Vehicle Bombs.** For the purposes of these standards, the vehicle bomb is assumed to be a stationary vehicle bomb. The sizes of the explosives in the vehicle bombs associated with explosive weight I (in equivalent weight of TNT) are likely to be detected in a vehicle during a search. Therefore, explosive weight I is the basis for the standoff distances associated with the controlled perimeter. The quantity of explosives associated with explosive weight II is assumed to be able to enter the controlled perimeter undetected; therefore, explosive weight II is the basis for the standoff distances for roadways and parking. Explosive weight II was selected because it represents a tradeoff between likelihood of detection and the risk of injury or damage.

2-4.1.1.2 **Waterborne Vessel Bombs.** For the purposes of these standards, waterborne vessels will also be assumed to contain quantities of explosives associated with explosive weight I. That weight was selected because areas beyond the shoreline are assumed not to be controlled perimeters.

2-4.1.1.3 **Placed Bombs.** Hand-carried explosives placed near buildings can cause significant localized damage, potentially resulting in injuries or fatalities. It is assumed that aggressors will not attempt to place explosive devices in areas near buildings where those devices could be visually detected by building occupants casually observing the area around the building. It is also assumed that there will be sufficient

controls to preclude bombs being brought into buildings. Explosive weight II is assumed to be placed by hand either in trash containers or in the immediate vicinity of buildings. That quantity of explosives is further assumed to be built into a bomb 150 millimeters (6 inches) or greater in height.

2-4.1.1.4 Mail Bombs. Explosives in packages delivered through the mail can cause significant localized damage, injuries, and fatalities if they detonate inside a building. No assumption as to the size of such explosives is made in these standards. Provisions for mail bombs are limited to locations of mailrooms so that they can be more readily hardened if a specific threat of a mail bomb is identified in the future.

2-4.1.2 Indirect Fire Weapons. For the purpose of these standards, indirect fire weapons are assumed to be military mortars with fragmentation rounds containing explosives equivalent to explosive weight III in Tables B-1 and D-1. Protection against the effects of such rounds on an individual building is not considered practical as a minimum standard; therefore, these standards are intended to limit collateral damage to adjacent buildings from these weapons.

2-4.1.3 Direct Fire Weapons. For the purpose of these standards, direct fire weapons include small arms weapons and shoulder fired rockets that require a direct line of sight. Some standards in this document are predicated on a direct fire weapon threat. Provisions of those standards are based on the assumption that those weapons will be fired from vantage points outside the control of an installation or facility. Obscuration or screening that minimizes targeting opportunities is assumed to be the primary means of protecting DoD personnel from these weapons in these standards.

2-4.1.4 Fire. Recent incidents indicate that causing fires can be considered a terrorist tactic. Fire may be used as a direct terrorist tactic or it may be a secondary effect of some other tactic. Examples of how fire might be used as a direct tactic would include arson and driving a fuel truck or other fuel-laden vehicle into a building.

2-4.1.5 Chemical, Biological, and Radiological Weapons. For the purposes of these standards, these weapons are assumed to be improvised weapons containing airborne agents employed by terrorists. These standards do not assume comprehensive protection against this threat. They provide means to reduce the potential for widespread dissemination of such agents throughout a building in the event of an attack.

2-4.2 Controlled Perimeter. These standards assume that procedures are implemented to search for and detect explosives to limit the likelihood that a vehicle carrying quantities of explosives equivalent to explosive weight I in Tables B-1 and D-1 could penetrate a controlled perimeter undetected. It is further assumed that access control will include provisions to reject vehicles without penetrating the controlled perimeter.

2-4.3 Levels of Protection. The potential levels of protection are described in Tables 2-1, 2-2, and 2-3. These standards provide a **Low** level of protection for billeting and primary gathering buildings and a **Very Low** level of protection for other inhabited buildings. Greater protection is provided for primary gathering buildings and billeting

because of the higher concentration of personnel and the more attractive nature of the target. If the minimum standoff distances are provided, or if mitigating measures are provided to achieve an equivalent level of protection, and if the threats are no greater than those indicated in Tables B-1 and D-1, the risk of injuries and fatalities will be reduced. Threats higher than those envisioned in Tables B-1 and D-1 will increase the likelihood of injuries and fatalities regardless of the level of protection. Refer to the *DoD Security Engineering Manual* for detailed guidance on levels of protection and how to achieve them for a wide range of threats.

2-4.4 Minimum Standoff Distances. The minimum standoff distances identified in Tables B-1 and D-1 were developed to provide survivable structures for a wide range of conventionally constructed buildings and expeditionary/temporary structures. These buildings range from tents and wood framed buildings to reinforced concrete buildings. For a more detailed discussion of this issue, refer to the *DoD Security Engineering Manual*.

2-4.4.1 Conventional Construction Standoff Distance. The standoff distances in the “Conventional Construction Standoff Distance” column in Table B-1 are based on explosive safety considerations that have been developed based on years of experience and observation. Those standoff distances may be conservative for heavy construction such as reinforced concrete or reinforced masonry; however, they may be just adequate for lighter-weight construction.

2-4.4.2 Effective Standoff Distance. Because standoff distances from the “Conventional Construction Standoff Distance” column of Table B-1 may be overly conservative for some construction types, these standards allow for the adjustment of standoff distances based on the results of a structural analysis considering the applicable explosive weights in Table B-1. For new buildings, even if such an analysis suggests a standoff distance of less than those shown in the “Effective Standoff Distance” column of Table B-1, standoff distances of less than those in that column are not allowed to ensure there is a minimal standoff distance “reserved” to accommodate future upgrades that could be necessitated by emerging threats. In addition, the 10 meter (33 feet) minimum is established to ensure there is no encroachment on the unobstructed space. For existing buildings, the standoff distances in the “Effective Standoff Distance” column of Table B-1 will be provided except where doing so is not possible. In those cases, lesser standoff distances may be allowed where the required level of protection can be shown to be achieved through analysis or can be achieved through building hardening or other mitigating construction or retrofit.

2-4.4.3 Temporary and Expeditionary Construction. The standoff distances in Table D-1 are based on blast testing conducted against TEMPER Tents, SEA Huts, General Purpose Shelters, and Small Shelter Systems. With adequate analysis those distances may be able to be reduced without requiring mitigating measures.

2-4.5 Exempted Building Types. For the reasons below some building types are exempted from some or all of these standards. The minimum standards should be applied to the exempted building types where possible.

Table 2-1 Levels of Protection – New Buildings

Level of Protection	Potential Structural Damage	Potential Door and Glazing Hazards	Potential Injury
Below AT standards	Severely damaged. Frame collapse/massive destruction. Little left standing.	Doors and windows fail and result in lethal hazards	Majority of personnel suffer fatalities.
Very Low	Heavily damaged - onset of structural collapse: Major deformation of primary and secondary structural members, but progressive collapse is unlikely. Collapse of non-structural elements.	Glazing will break and is likely to be propelled into the building, resulting in serious glazing fragment injuries, but fragments will be reduced. Doors may be propelled into rooms, presenting serious hazards.	Majority of personnel suffer serious injuries. There are likely to be a limited number (10% to 25%) of fatalities.
Low	Damaged – unreparable. Major deformation of non-structural elements and secondary structural members and minor deformation of primary structural members, but progressive collapse is unlikely.	Glazing will break, but fall within 1 meter of the wall or otherwise not present a significant fragment hazard. Doors may fail, but they will rebound out of their frames, presenting minimal hazards.	Majority of personnel suffer significant injuries. There may be a few (<10%) fatalities.
Medium	Damaged – repairable. Minor deformations of non-structural elements and secondary structural members and no permanent deformation in primary structural members.	Glazing will break, but will remain in the window frame. Doors will stay in frames, but will not be reusable.	Some minor injuries, but fatalities are unlikely.
High	Superficially damaged. No permanent deformation of primary and secondary structural members or non-structural elements.	Glazing will not break. Doors will be reusable.	Only superficial injuries are likely.

Table 2-2 Levels of Protection – Existing Buildings

Level of Protection	Potential Structural Damage	Potential Door and Glazing Hazards	Potential Injury
Below AT standards	Severely damaged. Frame collapse/massive destruction. Little left standing.	Doors and windows fail and result in lethal hazards	Majority of personnel suffer fatalities.
Very Low	Heavily damaged - onset of structural collapse: Major deformation of primary structural members, but progressive collapse is unlikely. Collapse of secondary structural members and non-structural elements.	Glazing will break and is likely to be propelled into the building, resulting in serious glazing fragment injuries, but fragments will be reduced. Doors may be propelled into rooms, presenting serious hazards.	Majority of personnel suffer serious injuries. There are likely to be a limited number (10% to 25%) of fatalities.
Low	Damaged – unrepairable. Major deformation of secondary structural members and minor deformation of primary structural members, but progressive collapse is unlikely. Collapse of non-structural elements.	Glazing will break and is likely to be propelled into the building, but should result in survivable glazing fragment injuries. Doors may fail, but they will rebound out of their frames, presenting minimal hazards.	Majority of personnel suffer significant injuries. There may be a few (<10%) fatalities.
Medium	Damaged – repairable. Minor deformations of secondary structural members and no permanent deformation in primary structural members. Major deformation of non-structural elements.	Glazing will break, but will remain in the window frame. Doors will stay in frames, but will not be reusable.	Some minor injuries, but fatalities are unlikely.
High	Superficially damaged. No permanent deformation of primary and secondary structural members or non-structural elements.	Glazing will not break. Doors will be reusable.	Only superficial injuries are likely.

Table 2-3 Levels of Protection – Expeditionary and Temporary Structures		
Level of Protection	Potential Structural Damage	Potential Injury
Below AT Standards	Severely damaged. Frame collapse/massive destruction. Little left standing.	Majority of personnel suffer fatalities.
Very Low	Heavily damaged. Major portions of the structure will collapse (over 50%). A significant percentage of secondary structural members will collapse (over 50%).	Majority of personnel suffer serious injuries. There are likely to be a limited number (10% to 25%) of fatalities.
Low	Damaged – unrepairable. Some sections of the structure may collapse or lose structural capacity (10 to 20% of structure).	Majority of personnel suffer significant injuries. There may be a few (<10%) fatalities.
Medium	Damaged – repairable. Minor to major deformations of both structural members and non-structural elements. Some secondary debris will be likely, but the structure remains intact with collapse unlikely.	Some minor injuries, but no fatalities are likely.
High	Superficially damaged. No permanent deformation of primary and secondary structural members or non-structural elements.	Only superficial injuries are likely.

2-4.5.1 **Family Housing.** The exemption of family housing with 12 units or fewer in a single building acknowledges that the density of such units is generally low, reducing the likelihood of mass casualties. It also acknowledges the fact that low-density housing has rarely been directly targeted by terrorists. A further assumption for existing family housing with 13 or more units per building is that by designating parking spaces for specific residents or residences, the risk of parking vehicle bombs in those parking areas is reduced due to increased awareness of the vehicles that are authorized to park there.

2-4.5.2 **Shoppettes, Mini Marts, Similarly Sized Commissaries and Stand-Alone Franchised Food Operations.** These facilities by the nature of their smaller size and their operation require parking in close proximity; therefore, they are exempted from the minimum standoff distances for parking and roadways. Applying other upgrades required by these standards is feasible, however, and will lessen the risk of mass casualties.

2-4.5.3 **Gas Stations and Car Care Centers.** These facilities are exempted from these standards because, by the nature of their operation, cars must be allowed to be in close proximity to them. Other measures included in these standards would be ineffective in the absence of any control on vehicles.

2-4.5.4 **Medical Transitional Structures and Spaces.** These structures and spaces may be required for limited durations to maintain mission-critical operations during construction that require close proximity or physical connection to the existing building undergoing construction. This may make compliance with some of the standoff distance provisions of these standards impractical during the limited construction duration.

2-4.5.5 **Other Transitional Structures and Spaces.** These structures and spaces are exempted from some of the standoff distance provisions of these standards because it would be impractical to apply them considering the limited less-than-1-year duration of occupancy.

2-4.5.6 **Recruiting Stations In Leased Spaces.** These facilities are exempted because their visibility and accessibility necessitate their being located in public spaces, which makes requiring them to comply with these standards impractical. In addition, the majority of these facilities do not have a sufficient population and population density to meet the inhabited building standard.

2-4.6 **Policies and Procedures.** Policies and procedures are a critical adjunct to building standards. It is assumed that there are means to control access to controlled perimeters, underground parking, and other locations where vehicle access needs to be limited. It is further assumed that unusual packages or containers or improperly parked vehicles will be recognized as potential terrorist threats and appropriate reactive measures will be implemented to reduce the potential for casualties. Finally, it is assumed that policies and procedures will be developed to support these and other related issues and that those policies and procedures will be incorporated into antiterrorism plans, training, and exercises.

2-4.7 **Design Criteria.** It is assumed that the provisions of these standards will be coordinated with all other applicable DoD building and design criteria and policies. Nothing in these standards should be interpreted to supersede the provisions of any other applicable building or design criteria. Where other criteria mandate more stringent requirements, it is assumed that the provisions of those criteria will be followed.

2-4.8 **Enhanced Fire Safety.** Historic fire scenarios and fuel loadings for various common buildings types that are the basis for requirements in building and life safety codes are likely to be much less severe than those experienced in terrorist attacks. Therefore, in the event of a terrorist attack, fire safety may be critical to the survival of building occupants and limiting the extent of building damage. Fire safety may be enhanced by designing buildings to limit the extent or severity of a fire and providing more effective egress routes. Changes to fire safety requirements, while they may be justifiable from an antiterrorism standpoint, are beyond the scope of these standards.

2-4.9 **Training.** It is assumed that key security and facility personnel will receive training in security engineering, antiterrorism, and related areas. Refer to the Security Engineering Working Group web site for available training and to DoD 2000.12-H for additional information on training issues. It is further assumed that all DoD personnel have been trained in basic antiterrorism awareness in accordance with DoDI 2000.16, that they are able to recognize potential threats, and that they know the proper courses of action should they detect a potential threat.

2-4.10 **Expeditionary and Temporary Structures.** Expeditionary and temporary structures are commonly built of either combinations of metal frames and fabric or wood frames and rigid walls. It is assumed that most expeditionary and temporary structures cannot be retrofitted or hardened sufficiently for higher threats; therefore, unless adequate planning is done to obtain the needed space to achieve appropriate standoff, DoD personnel will be highly vulnerable to terrorist attack.

2-4.11 **Leased Buildings.** DoD personnel occupying leased buildings deserve the same level of protection as those in DoD-owned buildings; therefore, they should meet the requirements of these standards wherever possible. They must meet the requirements when the DoD occupancy meets the criteria in these standards. The thresholds in those criteria reflect the significance of higher populations of DoD personnel as targets versus the inherent risk reduction associated with dispersing DoD personnel.

APPENDIX A

DEFINITIONS

Access control. For the purposes of these standards, any combination of barriers, gates, electronic security equipment, and/or guards that can deny entry to unauthorized personnel or vehicles.

Access road. Any roadway such as a maintenance, delivery, service, emergency, or other special limited use road that is necessary for the operation of a building or structure.

Billeting. Any building or portion of a building in which 11 or more unaccompanied DoD personnel are routinely housed, including Temporary Lodging Facilities and military family housing permanently converted to unaccompanied housing. Billeting also applies to expeditionary and temporary structures with similar population densities and functions.

Building hardening. Enhanced conventional construction that mitigates threat hazards where standoff distance is limited. Building hardening may also be considered to include the prohibition of certain building materials and construction techniques.

Building separation. The distance between closest points on the exterior walls of adjacent buildings or structures.

Collateral damage. Injury to personnel or damage to buildings that are not the primary target of an attack.

Container structures. Structures built using shipping containers that are designed to withstand structural loadings associated with shipping, including Container Express (CONEX) and International Organization for Standardization (ISO) containers. Testing has shown that these structures behave similarly to buildings for the purposes of these standards.

Controlled perimeter. For the purposes of these standards, a physical boundary at which vehicle access is controlled at the perimeter of an installation, an area within an installation, or another area with restricted access. A physical boundary will be considered as a sufficient means to channel vehicles to the access control points. At a minimum, access control at a controlled perimeter requires the demonstrated capability to search for and detect explosives. Where the controlled perimeter includes a shoreline and there is no defined perimeter beyond the shoreline, the boundary will be at the mean high water mark.

Conventional construction. Building construction that is not specifically designed to resist weapons or explosives effects. Conventional construction is designed only to resist common loadings and environmental effects such as wind, seismic, and snow loads.

Conventional Construction Standoff Distance. The standoff distance at which conventional construction may be used for buildings without a specific analysis of blast effects, except as otherwise required in these standards.

Design Basis Threat. The threat (aggressors, tactics, and associated weapons, tools, or explosives) against which assets within a building must be protected and upon which the security engineering design of the building is based.

DoD building. Any building or portion of a building (permanent, temporary, or expeditionary) owned, leased, privatized, or otherwise occupied, managed, or controlled by or for DoD. DoD buildings are categorized within these standards as uninhabited, inhabited, primary gathering and billeting.

DoD Components. The Office of the Secretary of Defense (OSD); the Military Departments (including their National Guard and Reserve Components); the Chairman, Joint Chiefs of Staff and Joint Staff; the Combatant Commands; the Office of the Inspector General of the Department of Defense; the Defense Agencies; the DoD Field Activities; and all other organizational entities within DoD.

DoD personnel. Any U.S. military, DoD civilian, or family member thereof, host-nation employees working for DoD, or contractors occupying DoD buildings.

Effective Standoff Distance. A standoff distance less than the Conventional Construction Standoff Distance at which the required level of protection can be shown to be achieved through analysis or can be achieved through building hardening or other mitigating construction or retrofit.

Expeditionary structures. Those structures intended to be inhabited for no more than 1 year after they are erected. This group of structures typically include tents, Small and Medium Shelter Systems, Expandable Shelter Containers (ESC), ISO and CONEX containers, and General Purpose (GP) Medium tents and GP Large tents, etc.

Fabric covered/metal frame construction. A construction type that can be identified by a metal, load-bearing frame (usually aluminum) with some type of fabric (such as canvas) stretched or pulled over the frame. Examples of the types of structures that should be considered under this classification of structures include Frame-Supported Tensioned Fabric Structures (FSTFS); Tent, Extendable, Modular, Personnel (TEMPER Tents); and Small and Medium Shelter Systems (SSS and MSS); and air supported fabric structures. Testing has shown that for these fabric structures, the frame is what causes hazards.

Family housing. DoD buildings used as quarters for DoD personnel and their dependents. For the purposes of these standards, family housing will be considered to include Morale, Welfare, and Recreation housing (cottages) of similar occupancies.

Glazing. The part of a window or door assembly that normally transmits light, but not air.

Inhabited building. Buildings or portions of buildings routinely occupied by 11 or more DoD personnel and with a population density of greater than one person per 40 gross square meters (430 gross square feet). This density generally excludes industrial, maintenance, and storage facilities, except for more densely populated portions of those buildings such as administrative areas. The inhabited building designation also applies to expeditionary and temporary structures with similar population densities. In a building that meets the criterion of having 11 or more personnel, with portions that do not have sufficient population densities to qualify as inhabited buildings, those portions that have sufficient population densities will be considered inhabited buildings while the remainder of the building may be considered uninhabited, subject to provisions of these standards. An example would be a hangar with an administrative area within it. The administrative area would be treated as an inhabited building while the remainder of the hangar could be treated as uninhabited. (Note: This definition differs significantly from the definition for inhabited building used by DoD 6055.9-STD and is not construed to be authorization to deviate from criteria of DoD 6055.9-STD.)

Laminated glass. Multiple sheets of glass bonded together by a bonding interlayer.

Level of protection. The degree to which an asset (person, equipment, object, etc.) is protected against injury or damage from an attack.

Mass notification. Capability to provide real-time information to all building occupants or personnel in the immediate vicinity of a building during emergency situations.

Medical transitional structures and spaces. Structures that are erected or leased for temporary occupancy to maintain mission-critical medical care during construction, renovation, modification, repair or restoration of an existing medical structure. Examples include urgent, ambulatory, and acute care operations.

Parking. Designated areas where vehicles may be left unattended.

Primary gathering building. Inhabited buildings routinely occupied by 50 or more DoD personnel and family housing with 13 or more family units per building. This designation applies to the entire portion of a building that meets the population density requirements for an inhabited building. For example, an inhabited portion of the building that has an area within it with 50 or more personnel is a primary gathering building for the entire inhabited portion of the building. The primary gathering building designation also applies to expeditionary and temporary structures with similar population densities.

Progressive collapse. A chain reaction failure of building members to an extent disproportionate to the original localized damage. Such damage may result in upper floors of a building collapsing onto lower floors.

Roadways. Any surface intended for motorized vehicle traffic.

Routinely occupied. For the purposes of these standards, an established or predictable pattern of activity within a building that terrorists could recognize and exploit.

Security engineering. The process of identifying practical, risk managed short and long-term solutions to reduce and/or mitigate dynamic manmade hazards by integrating multiple factors, including construction, equipment, manpower, and procedures.

Specific threat. Known or postulated aggressor activity focused on targeting a particular asset.

Standoff distance. A distance maintained between a building or portion thereof and the potential location for an explosive detonation.

Structure group. A cluster of expeditionary or temporary structures consisting of multiple rows of individual structures with 200 or fewer DoD personnel.

Structural glazed window systems. Window systems in which glazing is bonded to both sides of the window frame using an adhesive such as a high-strength, high-performance silicone sealant.

Superstructure. The supporting elements of a building above the foundation.

Temporary structures. Those structures that are erected with an expected occupancy of 3 years or less. This group of structures typically includes wood frame and rigid wall construction, and such things as Southeast Asia (SEA) Huts, hardback tents, ISO and CONEX containers, pre-engineered buildings, trailers, stress tensioned shelters, Expandable Shelter Containers (ESC), and Aircraft Hangars (ACH).

TNT equivalent weight. The weight of TNT (trinitrotoluene) that has an equivalent energetic output to that of a different weight of another explosive compound.

Transitional structures and spaces. Structures or spaces within buildings that are used to temporarily (less than 1 year) relocate occupants of another building while that building undergoes renovations, modifications, repairs, or restorations.

Unobstructed space. Space within 10 meters (33 feet) of an inhabited building that does not allow for concealment from observation of explosive devices 150 mm (6 inches) or greater in height.

APPENDIX B

DoD MINIMUM ANTITERRORISM STANDARDS FOR NEW AND EXISTING BUILDINGS

B-1 SITE PLANNING. Operational, logistic, and security requirements must be integrated into the overall design of buildings, equipment, landscaping, parking, roads, and other features. The most cost-effective solution for mitigating explosive effects on buildings is to keep explosives as far as possible from them. Standoff distance must be coupled with appropriate building hardening to provide the necessary level of protection to DoD personnel. The following standards detail minimum standoff distances that when achieved will allow for buildings to be built with minimal additional construction costs. Where these standoff distances cannot be achieved because land is unavailable, these standards allow for building hardening to mitigate the blast effects. Costs and requirements for building hardening are addressed in the *DoD Security Engineering Manual*.

B-1.1 Standard 1. Minimum Standoff Distances. The minimum standoff distances apply to all new and existing (when triggered) DoD buildings covered by these standards. The minimum standoff distances are presented in Table B-1 and illustrated in Figures B-1 and B-2. Where the standoff distances in the “Conventional Construction Standoff Distance” column of Table B-1 can be met, conventional construction may be used for the buildings without a specific analysis of blast effects, except as otherwise required in these standards. Where those distances are not available, an engineer experienced in blast-resistant design should analyze the building and apply building hardening as necessary to mitigate the effects of the explosives indicated in Table B-1 at the achievable standoff distance to the appropriate level of protection. The appropriate levels of protection for each building category are shown in Table B-1, and are described in Tables 2-1 and 2-2 and in the *DoD Security Engineering Manual*. For new buildings, standoff distances of less than those shown in the “Effective Standoff Distance” column in Table B-1 are not allowed. For existing buildings, the standoff distances in the “Effective Standoff Distance” column of Table B-1 will be provided except where doing so is not possible. In those cases, lesser standoff distances may be allowed where the required level of protection can be shown to be achieved through analysis or can be achieved through building hardening or other mitigating construction or retrofit.

B-1.1.1 Controlled Perimeter. Measure the standoff distance from the controlled perimeter to the closest point on the building exterior or inhabited portion of the building.

B-1.1.2 Parking and Roadways. Standoff distances for parking and roadways are based on the assumption that there is a controlled perimeter at which larger vehicle bombs will be detected and kept from entering the controlled perimeter. Where there is a controlled perimeter, the standoff distances and explosive weight associated with parking and roadways in Table B-1 apply. If there is no controlled perimeter, assume that the larger explosive weights upon which the controlled perimeter standoff distances are based (explosive weight I from Table B-1) can access parking and roadways near

**Table B-1 Minimum Standoff Distances and Separation
for New and Existing Buildings**

Location	Building Category	Standoff Distance or Separation Requirements			
		Applicable Level of Protection	Conventional Construction Standoff Distance	Effective Standoff Distance ⁽¹⁾	Applicable Explosive Weight ⁽²⁾
Controlled Perimeter or Parking and Roadways without a Controlled Perimeter	Billeting	Low	45 m ⁽⁴⁾ (148 ft.)	25 m ⁽⁴⁾ (82 ft.)	I
	Primary Gathering Building	Low	45 m ^{(4) (5)} (148 ft.)	25 m ^{(4) (5)} (82 ft.)	I
	Inhabited Building	Very Low	25 m ⁽⁴⁾ (82 ft.)	10 m ⁽⁴⁾ (33 ft.)	I
Parking and Roadways within a Controlled Perimeter	Billeting	Low	25 m ⁽⁴⁾ (82 ft.)	10 m ⁽⁴⁾ (33 ft.)	II
	Primary Gathering Building	Low	25 m ^{(4) (5)} (82 ft.)	10 m ^{(4) (5)} (33 ft.)	II
	Inhabited Building	Very Low	10 m ⁽⁴⁾ (33 ft.)	10 m ⁽⁴⁾ (33 ft.)	II
Trash Containers	Billeting	Low	25 m (82 ft.)	10 m (33 ft.)	II
	Primary Gathering Building	Low	25 m (82 ft.)	10 m (33 ft.)	II
	Inhabited Building	Very Low	10 m (33 ft.)	10 m (33 ft.)	II
Building Separation (for new buildings only)	Billeting	Low	10 m (33 ft.)	No antiterrorism minimum	III ⁽³⁾
	Primary Gathering Building	Low	10 m (33 ft.)	No antiterrorism minimum	III ⁽³⁾
	Inhabited Building	Very Low	No antiterrorism minimum	No antiterrorism minimum	Not applicable

(1) Even with analysis, standoff distances less than those in this column are not allowed for new buildings, but are allowed for existing buildings if constructed/retrofitted to provide the required level of protection at the reduced standoff distance.

(2) See UFC 4-010-10, for the specific explosive weights (kg/pounds of TNT) associated with designations – I, II, III. UFC 4-010-10 is For Official Use Only (FOUO)

(3) Explosive for building separation is an indirect fire (mortar) round.

(4) For existing buildings, see paragraph B-1.1.2.2.

(5) For existing family housing, see paragraph B-1.1.2.2.3.

Figure B-1 Standoff Distances and Building Separation – Controlled Perimeter

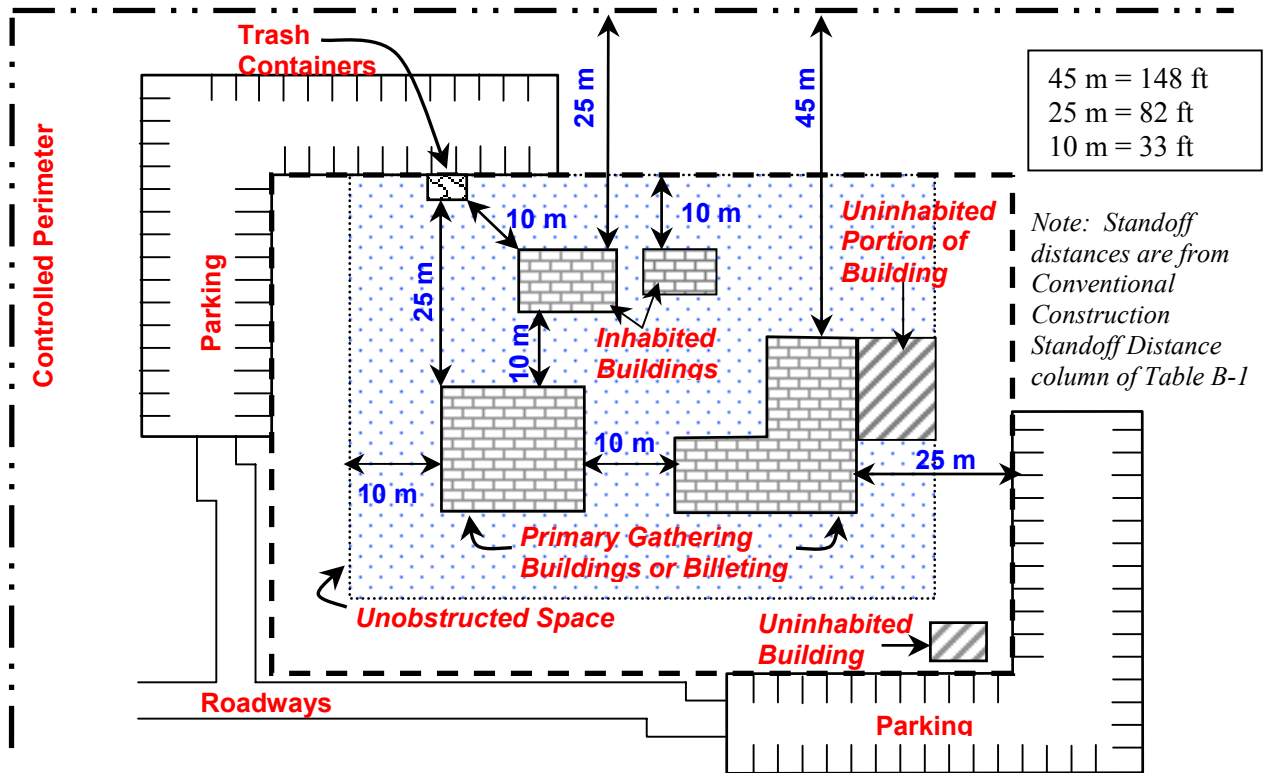
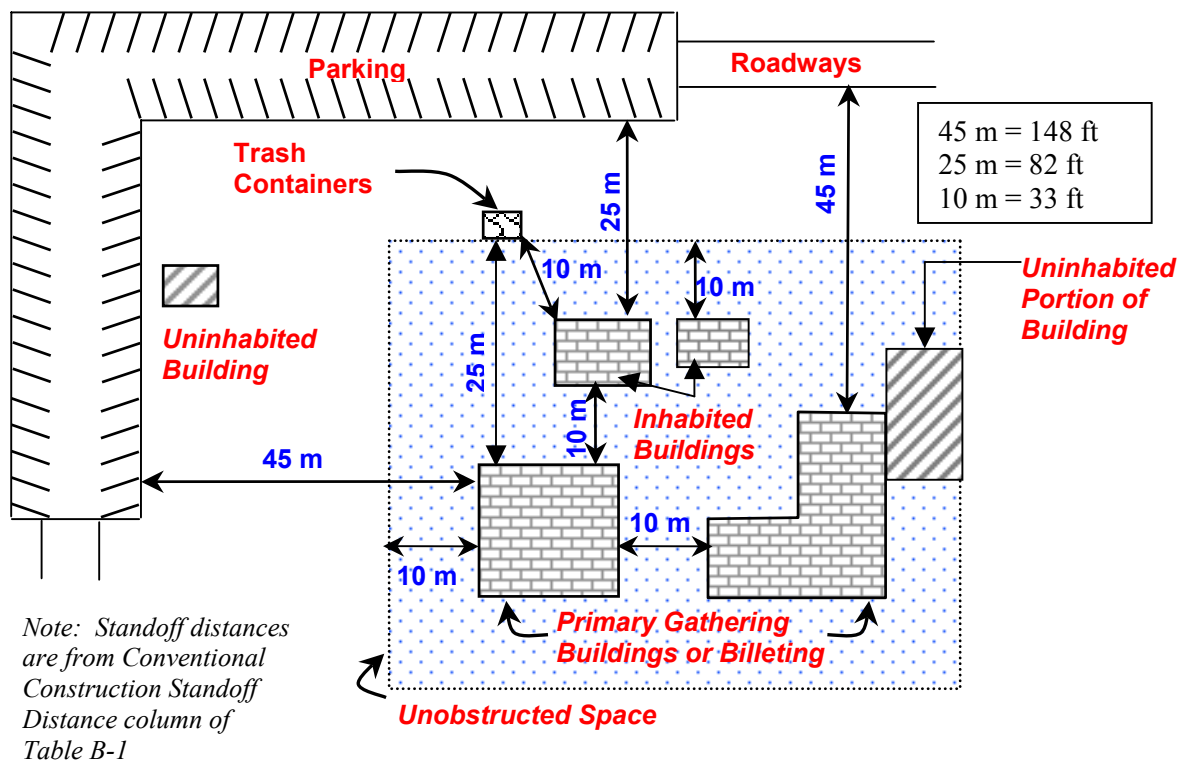


Figure B-2 Standoff Distances and Building Separation – No Controlled Perimeter



buildings. Therefore, where there is no controlled perimeter, use standoff distances from parking and roadways according to the distances and the explosive weight associated with controlled perimeters in Table B-1. Measure the standoff distance from the closest edge of parking areas and roadways to the closest point on the building exterior or inhabited portion of the building. In addition, the following apply:

B-1.1.2.1 New Inhabited Buildings. The minimum standoff for all new buildings regardless of hardening or analysis is 10 meters (33 feet) for both parking areas and roadways.

B-1.1.2.2 Existing Inhabited Buildings. Where possible, move parking and roadways away from existing buildings in accordance with the standoff distances and explosive weights in Table B-1. It is recognized, however, that moving existing parking areas and roadways or applying structural retrofits may be impractical; therefore, the following operational options are provided for existing inhabited buildings:

B-1.1.2.2.1 Parking Areas. Establish access control to portions of parking areas that are closer than the required standoff distance to ensure unauthorized vehicles are not allowed closer than the required standoff distance. For primary gathering buildings and billeting, if access control is provided to prevent unauthorized parking within the required standoff distance, controlled parking may be permitted as close as 10 meters (33 feet) without hardening or analysis. Controlled parking may be allowed closer if it can be shown by analysis that the required level of protection can be provided at the lesser standoff distance or if it can be provided through building hardening or other mitigating construction or retrofit.

B-1.1.2.2.2 Parking on Roadways. Eliminate parking on roadways within the required standoff distances along roads adjacent to existing buildings covered by these standards.

B-1.1.2.2.3 Parking for Family Housing. For existing family housing with 13 or more units per building within a controlled perimeter or where there is access control to the parking area, parking within the required standoff distances may be allowed where designated parking spaces are assigned for specific residents or residences. Do not label assigned parking spaces with names or ranks of the residents. Do not encroach upon existing standoff distances where the existing standoff distances are less than the required standoff distances. For example, where the required standoff distance is 10 meters, but existing designated parking is only 8 meters (27 feet) from existing family housing, that parking may be retained, but additional parking will not be allowed closer than 8 meters (27 feet.)

B-1.1.3 Parking and Roadway Projects. Where practical, all roadway and parking area projects should comply with the standoff distances from inhabited buildings in Table B-1. Where parking or roadways that are within the standoff distances in Table B-1 from existing buildings are being constructed, expanded, or relocated, do not allow those parking areas and roadways to encroach on the existing standoff distances of any existing inhabited building. That applies even where such projects are not associated with a building renovation, modification, repair, or restoration requiring compliance with these standards.

B-1.1.4 **Trash Containers.** Measure the standoff distance from the nearest point of the trash container or trash container enclosure to the closest point on the building exterior or inhabited portion of the building. Where the standoff distance is not available, harden trash enclosures to mitigate the direct blast effects and secondary fragment effects of the explosive on the building if the applicable level of protection can be proven by analysis. If trash enclosures are secured to preclude introduction of objects into the enclosures by unauthorized personnel, they may be located closer to the building as long as they do not violate the unobstructed space provisions of Standard 3. Openings in screening materials and gaps between the ground and screens or walls making up an enclosure must not be greater than 150 mm (6 inches).

B-1.2 **Standard 2. Building Separation.** Building separation requirements apply to new buildings and are established to minimize the possibility that an attack on one building causes injuries or fatalities in adjacent buildings. The separation distance is predicated on the potential use of indirect fire weapons.

B-1.2.1 **Billeting and Primary Gathering Buildings.** For all new billeting and primary gathering buildings, ensure that adjacent inhabited buildings are separated by at least the distances in Table B-1. Where it is necessary to encroach on those building separations, analyze the structure and provide hardened building components as necessary to mitigate the effects of the explosive indicated in Table B-1 to the appropriate level of protection shown in Table B-1. Levels of protection are described in Table 2-1 and in the *DoD Security Engineering Manual*.

B-1.2.2 **Other Inhabited Buildings.** There are no minimum separation distances required for antiterrorism purposes for inhabited buildings other than billeting and primary gathering buildings.

B-1.3 **Standard 3. Unobstructed Space.** It is assumed that aggressors will not attempt to place explosive devices in areas near buildings where these explosive devices could be visually detected by building occupants observing the area around the building. Therefore, ensure that obstructions within 10 meters (33 feet) of inhabited buildings or portions thereof do not allow for concealment from observation of explosive devices 150 mm (6 inches) or greater in height. This does not preclude the placement of site furnishings or plantings around buildings. It only requires conditions such that any explosive devices placed in that space would be observable by building occupants. For existing buildings where the standoff distances for parking and roadways have been established at less than 10 meters (33 feet) in accordance with paragraph B-1.1.2.2, the unobstructed space may be reduced to be equivalent to that distance.

B-1.3.1 **Electrical and Mechanical Equipment.** The preferred location of electrical and mechanical equipment such as transformers, air-cooled condensers, and packaged chillers is outside the unobstructed space or on the roof. However this standard does not preclude placement within the unobstructed space as long the equipment provides no opportunity for concealment of explosive devices.

B-1.3.2 **Equipment Enclosures.** If walls or other screening devices with more than two sides are placed around electrical or mechanical equipment within the unobstructed space, enclose the equipment on all four sides and the top. Openings in

screening materials and gaps between the ground and screens or walls making up an enclosure will not be greater than 150 mm (6 inches). Secure any surfaces of the enclosures that can be opened so that unauthorized personnel cannot gain access through them.

B-1.4 **Standard 4. Drive-Up/Drop-Off Areas.** Some facilities require access to areas within the required standoff distance for dropping off or picking up people or loading or unloading packages and other objects. Examples that may require drive-up/drop-off include, but are not limited to, medical facilities, exchanges and commissaries, child care centers, and schools.

B-1.4.1 **Marking.** Where operational or safety considerations require drive-up or drop-off areas or drive-through lanes near buildings, ensure those areas or lanes are clearly defined and marked and that their intended use is clear to prevent parking of vehicles in those areas.

B-1.4.2 **Unattended Vehicles.** Do not allow unattended vehicles in drive-up or drop-off areas or drive-through lanes.

B-1.4.3 **Location.** Do not allow drive-through lanes or drive-up/drop-off to be located under any inhabited portion of a building.

B-1.5 **Standard 5. Access Roads.** Where access roads are necessary for the operation of a building (including those required for fire department access), ensure that access control measures are implemented to prohibit unauthorized vehicles from using access roads within the applicable standoff distances in Table B-1.

B-1.6 **Standard 6. Parking Beneath Buildings or on Rooftops.** Eliminate parking beneath inhabited buildings or on rooftops of inhabited buildings. Where very limited real estate makes such parking unavoidable, the following measures must be incorporated into the design for new buildings or mitigating measures must be incorporated into existing buildings to achieve an equivalent level of protection.

B-1.6.1 **Access Control.** Ensure that access control measures are implemented to prohibit unauthorized personnel and vehicles from entering parking areas.

B-1.6.2 **Structural Elements.** Ensure that the floors beneath or roofs above inhabited areas and all other adjacent supporting structural elements will not fail from the detonation in the parking area of an explosive equivalent to explosive weight II in Table B-1.

B-1.6.3 **Progressive Collapse.** All structural elements within and adjacent to the parking area will be subject to all progressive collapse provisions of Standard 7 except that the exterior member removal provision will also apply to interior vertical or horizontal load carrying elements. Apply those provisions based on an explosive equivalent to explosive weight II in Table B-1.

B-2 **STRUCTURAL DESIGN.** If the minimum standoff distances are achieved, conventional construction should minimize the risk of mass casualties from a terrorist

attack. Even if those standoff distances can be achieved, however, incorporate the following additional structural issues that must be incorporated into building designs to ensure that buildings do not experience progressive collapse.

B-2.1 Standard 7. Progressive Collapse Avoidance. Progressive collapse is considered to be significant risk for buildings of three or more stories. Basements will be considered stories if they have one or more exposed walls. For all new and existing inhabited buildings of three stories or more, design the superstructure to sustain local damage with the structural system as a whole remaining stable and not being damaged to an extent disproportionate to the original local damage. Achieve this through an arrangement of the structural elements that provides stability to the entire structural system by transferring loads from any locally damaged region to adjacent regions capable of resisting those loads without collapse. Accomplish this by providing sufficient continuity, redundancy, or energy dissipating capacity (ductility, damping, hardness, etc.), or a combination thereof, in the members and connections of the structure. For further guidance, refer to American Society of Civil Engineers Standard 7-98 and to detailed guidance in the *DoD Security Engineering Manual*. In addition, the measures below apply to all buildings of three or more stories.

B-2.1.1 Columns and Walls. Design all exterior vertical load-carrying columns and walls to sustain a loss of lateral support at any of the floor levels by adding one story height to the nominal unsupported length. While this standard is based on the assumption of an external threat, where parking beneath buildings is unavoidable, this provision also applies to internal vertical load carrying columns and walls.

B-2.1.2 Exterior Member Removal. Analyze the structure to ensure it can withstand removal of one primary exterior vertical or horizontal load-carrying element (i.e., a column or a beam) without progressive collapse.

B-2.1.3 Floors. Design all floors with improved capacity to withstand load reversals due to explosive effects by designing them to withstand a net uplift equal to the dead load plus one-half the live load.

B-2.2 Standard 8. Structural Isolation.

B-2.2.1 Building Additions. Design all additions to existing buildings to be structurally independent from the adjacent existing building. This will minimize the possibility that collapse of one part of the building will affect the stability of the remainder of the building. Alternatively, verify through analysis that collapse of either the addition or the existing building will not result in collapse of the remainder of the building.

B-2.2.2 Portions of Buildings. Where there are areas of buildings that do not meet the criteria for inhabited buildings, design the superstructures of those areas to be structurally independent from the inhabited area. This will minimize the possibility that collapse of the uninhabited areas of the building will affect the stability of the superstructure of the inhabited portion of the building. Alternatively, verify through analysis that collapse of uninhabited portions of the building will not result in collapse of

any portion of the building covered by this standard. This standard is not mandatory for existing structures, but it should be implemented where possible

B-2.3 Standard 9. Building Overhangs. Avoid building overhangs with inhabited spaces above them where people could gain access to the area underneath the overhang. Where such overhangs must be used, incorporate the following measures into the design for new buildings. Incorporate mitigating measures into existing buildings to achieve an equivalent level of protection.

B-2.3.1 Parking and Roadway Restrictions. Ensure that there are no roadways or parking areas under overhangs.

B-2.3.2 Floors. Ensure that the floors beneath inhabited areas will not fail from the detonation underneath the overhang of an explosive equivalent to explosive weight II where there is a controlled perimeter and explosive weight I for an uncontrolled perimeter. Explosive weights I and II are identified in Table B-1.

B-2.3.3 Superstructure. The progressive collapse provisions of Standard 7, including the provision for loss of lateral support for vertical load carrying elements, will include all structural elements within and adjacent to the overhang.

B-2.4 Standard 10. Exterior Masonry Walls. Unreinforced masonry walls are prohibited for the exterior walls of new buildings. A minimum of 0.05 percent vertical reinforcement with a maximum spacing of 1200 mm (48 in) will be provided. For existing buildings, implement mitigating measures to provide an equivalent level of protection.

B-3 ARCHITECTURAL DESIGN. Even where the minimum standoff distances are achieved, many aspects of building layout and other architectural design issues must be incorporated to improve overall protection of personnel inside buildings.

B-3.1 Standard 11. Windows and Glazed Doors. To minimize hazards from flying glass fragments, apply the provisions for glazing and window frames below for all new and existing inhabited buildings covered by these standards. Windows and frames must work as a system to ensure that their hazard mitigation is effective. These provisions apply even if the minimum standoff distances are met.

B-3.1.1 Glazing. Use a minimum of 6-mm (1/4-in) nominal laminated glass for all exterior windows and glazed doors. The 6-mm (1/4-in) laminated glass consists of two nominal 3-mm (1/8-in) glass panes bonded together with a minimum of a 0.75-mm (0.030-inch) polyvinyl-butylal (PVB) interlayer. For insulated glass units, use 6 mm (1/4 inch) laminated glass inner pane as a minimum. For alternatives to the 6-mm (1/4-in) laminated glass that provide equivalent levels of protection, refer to the *DoD Security Engineering Manual*.

B-3.1.2 Window Frames. Provide frames and mullions of aluminum or steel. To ensure that the full strength of the PVB inner layer is engaged, design frames, mullions, and window hardware to resist a static load of 7 kilopascals (1 lb per square in) applied to the surface of the glazing. Frame and mullion deformations shall not exceed 1/160 of the unsupported member lengths. The glazing shall have a minimum frame bite of 9.5-

mm (3/8-in) for structural glazed window systems and 25-mm (1-in) for window systems that are not structurally glazed. Design frame connections to surrounding walls to resist a combined ultimate loading consisting of a tension force of 35-kN/m (200-lbs/in) and a shear force of 13-kN/m (75 lbs/in). Design supporting elements and their connections based on their ultimate capacities. In addition, because the resulting dynamic loads are likely to be dissipated through multiple mechanisms, it is not necessary to account for reactions from the supporting elements in the design of the remainder of the structure. Alternatively, use frames that provide an equivalent level of performance. For existing buildings, this may require replacement or significant modification of window frames, anchorage, and supporting elements.

B-3.1.3 Mitigation. Where the minimum standoff distances cannot be met, provide glazing and frames that will provide an equivalent level of protection to that provided by the glazing above as described in Tables 2-1 and 2-2 for the applicable explosive weight in Table B-1.

B-3.1.4 Window Replacement Projects. Whenever window or door glazing is being replaced in existing inhabited buildings as part of a planned window or glazing replacement project, whether or not the building meets the triggers in paragraph 1-6.2, install glazing that meets all of the requirements above.

B-3.2 Standard 12. Building Entrance Layout. The areas outside of installations are commonly not under the direct control of the installations. Where the main entrances to buildings face installation perimeters, people entering and exiting the buildings are vulnerable to being fired upon from vantage points outside the installations. To mitigate those vulnerabilities apply the following measures:

B-3.2.1 New Buildings. For new inhabited buildings, ensure that the main entrance to the building does not face an installation perimeter or other uncontrolled vantage points with direct lines of sight to the entrance.

B-3.2.2 Existing Buildings. For existing inhabited buildings where the main entrance faces an installation perimeter, either use a different entrance as the main entrance or screen that entrance to limit the ability of potential aggressors to target people entering and leaving the building.

B-3.3 Standard 13. Exterior Doors. For all new and existing buildings covered by these standards, ensure that all exterior doors into inhabited areas open outwards. By doing so, the doors will seat into the door frames in response to an explosive blast, increasing the likelihood that the doors will not enter the buildings as hazardous debris.

B-3.4 Standard 14. Mailrooms. The following measures address the location of rooms to which mail is delivered or in which mail is handled in new and existing inhabited buildings. The measures involve limiting collateral damage and injuries and facilitating future upgrades to enhance protection should they become necessary.

B-3.4.1 Location. Where a new or existing building covered by these standards must have a mailroom, locate that mailroom on the perimeter of the building. By locating the mailroom on the building perimeter there is an opportunity to modify it in the

future if a mail bomb threat is identified. Where mailrooms are located in the interior of buildings, few retrofit options are available for mitigating the mail bomb threat.

B-3.4.2 Proximity. Locate mailrooms as far from heavily populated areas of the building and critical infrastructure as possible. This measure will minimize injuries and damage if a mail bomb detonates in the mailroom. Further, it will reduce the potential for wider dissemination of hazardous agents. These apply where the mailroom is not specifically designed to resist those threats.

B-3.4.3 Sealing. To limit migration into buildings of airborne chemical, biological, and radiological agents introduced into mailrooms, ensure that mailrooms are well sealed between their envelopes and other portions of the buildings in which they are located. Ensure the mailroom walls are of full height construction that fully extends and is sealed to the undersides of the roofs, to the undersides of any floors above them, or to hard ceilings (i.e. gypsum wallboard ceiling.) Sealing should include visible cracks, the interface joints between walls and ceilings/roofs, and all wall and ceiling/roof penetrations. Doors will have weather stripping on all four edges. Refer to the *DoD Security Engineering Manual* for additional guidance.

B-3.5 Standard 15. Roof Access. For all new and existing inhabited buildings covered by these standards, control access to roofs to minimize the possibility of aggressors placing explosives or chemical, biological, or radiological agents there or otherwise threatening building occupants or critical infrastructure.

B-3.5.1 New Buildings. For new buildings eliminate all external roof access by providing access from internal stairways or ladders, such as in mechanical rooms.

B-3.5.2 Existing Buildings. For existing buildings, eliminate external access where possible or secure external ladders or stairways with locked cages or similar mechanisms.

B-3.6 Standard 16. Overhead Mounted Architectural Features. For all new and existing buildings covered by these standards, ensure that overhead mounted features weighing 14 kilograms (31 pounds) or more are mounted to minimize the likelihood that they will fall and injure building occupants. Mount all such systems so that they resist forces of 0.5 times the component weight in any direction and 1.5 times the component weight in the downward direction. This standard does not preclude the need to design architectural feature mountings for forces required by other criteria such as seismic standards.

B-4 ELECTRICAL AND MECHANICAL DESIGN. Electrical and mechanical design standards address limiting damage to critical infrastructure, protecting building occupants against chemical, biological, and radiological threats, and notifying building occupants of threats or hazards.

B-4.1 Standard 17. Air Intakes. Air intakes to heating, ventilation, and air conditioning (HVAC) systems that are designed to move air throughout a building that are at ground level provide an opportunity for aggressors to easily place contaminants that could be drawn into the building.

B-4.1.1 **New Buildings.** For all new inhabited buildings covered by this document locate all air intakes at least 3 meters (10 feet) above the ground.

B-4.1.2 **Existing Buildings.** The above requirement is recommended, but not mandatory, for existing inhabited buildings covered by these standards.

B-4.2 **Standard 18. Mailroom Ventilation.** To ensure airborne chemical, biological, and radiological agents introduced into mailrooms do not migrate into other areas of buildings in which the mailrooms are located, provide separate, dedicated air ventilation systems for mailrooms. Refer to the *DoD Security Engineering Manual* for additional guidance.

B-4.2.1 **Other Heating and Cooling Systems.** Building heating and cooling systems such as steam, hot water, chilled water, and refrigerant may serve mailrooms as long as the airflow systems for the mailrooms and other areas of the buildings in which they are located remain separate.

B-4.2.2 **Dedicated Exhaust Systems.** Provide dedicated exhaust systems within mailrooms to maintain slight negative air pressures with respect to the remainder of the buildings in which the mailrooms are located so that the flow of air is into and contained in the mailrooms. Though the airflow into the mailrooms will not eliminate the potential spread of contamination by personnel leaving the mailroom, it will limit the migration of airborne contaminants through openings and open doorways.

B-4.2.3 **Outside Intakes and Exhausts.** Provide mailroom ventilation system outside air intakes and exhausts with low leakage isolation dampers that can be closed to isolate the mailrooms.

B-4.2.4 **Isolation Controls.** Provide separate switches or methods of control to isolate mailrooms in the event of a suspected or actual chemical, biological, or radiological release.

B-4.3 **Standard 19. Emergency Air Distribution Shutoff.** For all new and existing inhabited buildings, provide an emergency shutoff switch in the HVAC control system that can immediately shut down air distribution throughout the building except where interior pressure and airflow control would more efficiently prevent the spread of airborne contaminants and/or ensure the safety of egress pathways. Locate the switch (or switches) to be easily accessible by building occupants. Providing such a capability will allow the facility manager or building security manager to limit the distribution of airborne contaminants that may be introduced into the building.

B-4.4 **Standard 20. Utility Distribution and Installation.** Utility systems can suffer significant damage when subjected to the shock of an explosion. Some of these utilities may be critical for safely evacuating personnel from the building or their destruction could cause damage that is disproportionate to other building damage resulting from an explosion. To minimize the possibility of the above hazards, apply the following measures:

B-4.4.1 **Utility Routing.** For all new inhabited buildings, route critical or fragile utilities so that they are not on exterior walls or on walls shared with mailrooms. This requirement is recommended, but not mandatory, for existing buildings.

B-4.4.2 **Redundant Utilities.** Where redundant utilities are required in accordance with other requirements or criteria, ensure that the redundant utilities are not collocated or do not run in the same chases. This minimizes the possibility that both sets of utilities will be adversely affected by a single event.

B-4.4.3 **Emergency Backup Systems.** Where emergency backup systems are required in accordance with requirements or criteria, ensure that they are located away from the system components for which they provide backup.

B-4.5 **Standard 21. Equipment Bracing.** Mount all overhead utilities and other fixtures weighing 14 kilograms (31 pounds) or more to minimize the likelihood that they will fall and injure building occupants. Design all equipment mountings to resist forces of 0.5 times the equipment weight in any direction and 1.5 times the equipment weight in the downward direction. This standard does not preclude the need to design equipment mountings for forces required by other criteria such as seismic standards.

B-4.6 **Standard 22. Under Building Access.** To limit opportunities for aggressors placing explosives underneath buildings, ensure that access to crawl spaces, utility tunnels, and other means of under building access is controlled.

B-4.7 **Standard 23. Mass Notification.** All inhabited buildings must have a timely means to notify occupants of threats and instruct them what to do in response to those threats.

B-4.7.1 **New Buildings.** All new inhabited buildings must have a capability to provide real-time information to building occupants or personnel in the immediate vicinity of the building during emergency situations. The information relayed must be specific enough to determine the appropriate response actions. Any system, procedure, or combination thereof that provides this capability will be acceptable under this standard.

B-4.7.2 **Existing Buildings.** For existing buildings, the above requirement is mandatory for primary gathering buildings and billeting, but recommended for all inhabited buildings.

APPENDIX C

RECOMMENDED ADDITIONAL ANTITERRORISM MEASURES FOR NEW AND EXISTING BUILDINGS

C-1 **SITE PLANNING.** The following additional measures, if implemented, will significantly enhance site security with little increase in cost and should be considered for all new and existing inhabited buildings.

C-1.1 **Recommendation 1. Vehicle Access Points.** The first line of defense in limiting opportunities for aggressors to get vehicles close to DoD buildings is at vehicle access points at the controlled perimeter, in parking areas, and at drive-up/drop-offs points. Keep the number of access points to the minimum necessary for operational or life safety purposes. This will limit the number of points at which access may have to be controlled with barriers and/or personnel in increased threat environments or if the threat increases in the future.

C-1.2 **Recommendation 2. High-Speed Vehicle Approaches.** The energy of a moving vehicle increases with the square of its velocity; therefore, minimizing a vehicle's speed allows vehicle barriers to be lighter and less expensive should vehicle barriers ever become necessary. To facilitate reductions in vehicle speeds in the future, ensure there are no unobstructed vehicle approaches perpendicular to inhabited buildings at the required parking and roadway standoff distances.

C-1.3 **Recommendation 3. Vantage Points.** Vantage points are natural or man-made positions from which potential aggressors can observe and target people or other assets in and around a building. Identify vantage points outside the control of personnel in the targeted building and either eliminate them or provide means to avoid exposure to them. Means to avoid exposure may include actions such as reorienting the building or shielding people or assets in and around the building using such measures as reflective glazing, walls, privacy fencing, or vegetation.

C-1.4 **Recommendation 4. Drive-Up/Drop Off.** Locate these points away from large glazed areas of the building to minimize the potential for hazardous flying glass fragments in the event of an explosion. For example, locate the lane at an outside corner of the building or otherwise away from the main entrance. Coordinate the drive-up/drop-off point with the building geometry to minimize the possibility that explosive blast forces could be increased due to being trapped or otherwise concentrated. For further discussion of this issue, refer to the *DoD Security Engineering Manual*.

C-1.5 **Recommendation 5. Building Location.** Activities with large visitor populations provide opportunities for potential aggressors to get near buildings with minimal controls, and therefore, limit opportunities for early detection. Maximize separation distance between inhabited buildings and areas with large visitor populations.

C-1.6 **Recommendation 6. Railroad Location.** Avoid sites for inhabited buildings that are close to railroads. Where railroads are in the vicinity of existing buildings, provide standoff distances between the railroad and any inhabited buildings

based on the standoff distances and explosive weight associated with controlled perimeters in Table B-1. Where those standoff distances are not available, and since moving existing railroads may be difficult and prohibitively expensive, ensure that there are procedures in place to prohibit trains from stopping in the vicinity of inhabited structures.

C-1.7 **Recommendation 7. Access Control for Family Housing.** For new family housing areas, provide space for controlling access at the perimeter of the housing area so that a controlled perimeter can be established there if the need arises in the future.

C-1.8 **Recommendation 8. Standoff for Family Housing.** For new family housing construction, maintain a minimum standoff distance of 25 meters (82 feet) from installation perimeters and roads, streets, or highways external to housing areas.

C-1.9 **Recommendation 9. Minimize Secondary Debris.** To reduce the hazard of flying debris in the event of an explosion, eliminate unrevetted barriers and site furnishings in the vicinity of inhabited structures that are accessible to vehicle traffic. Revet exposed barriers and site furnishings near inhabited buildings with a minimum of 1 meter (3 feet) of soil or equivalent alternative techniques to prevent fragmentation hazards in the event of an explosion.

C-2 **STRUCTURAL AND ARCHITECTURAL DESIGN.** The following additional measures, if implemented, will significantly enhance building occupants' safety and security with little increase in cost. Consider these measures for all new and existing inhabited buildings.

C-2.1 **Recommendation 10. Structural Redundancy.** Unexpected terrorist acts can result in local collapse of building structural components. To limit the extent of collapse of adjacent components, utilize highly redundant structural systems such as moment resisting frames, detail connections to provide continuity across joints equal to the full structural capacity of connected members, and detail members to accommodate large displacements without complete loss of strength. This recommendation is consistent with paragraph B-2.1 (Standard 7) for preventing progressive collapse, but recommends selection of certain structural systems and greater attention to structural details.

C-2.2 **Recommendation 11. Internal Circulation.** Design circulation within buildings to provide visual detection and monitoring of unauthorized personnel approaching controlled areas or occupied spaces.

C-2.3 **Recommendation 12. Visitor Control.** Controlling visitor access maximizes the possibility of detecting potential threatening activities. Keep locations in buildings where visitor access is controlled away from sensitive or critical areas, areas where high-risk or mission-critical personnel are located, or other areas with large population densities of DoD personnel.

C-2.4 **Recommendation 13. Asset Location.** To minimize exposure to direct blast effects and potential impacts from hazardous glass fragments and other potential

debris, locate critical assets and mission-critical or high-risk personnel away from the building exterior.

C-2.5 **Recommendation 14. Room Layout.** In rooms adjacent to the exterior of the building, position personnel and critical equipment to minimize exposure to direct blast effects and potential impacts from hazardous glass fragments and other potential debris.

C-2.6 **Recommendation 15. External Hallways.** Since doors can become hazardous debris during explosive blast events, doors designed to resist blast effects are expensive, and external hallways have large numbers of doors leading into inhabited areas, avoid exterior hallway configurations for inhabited structures.

C-2.7 **Recommendation 16. Windows.** To minimize the potential for glazing hazards, minimize the size and number of windows for new construction.

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APPENDIX D

DOD MINIMUM ANTITERRORISM STANDARDS FOR EXPEDITIONARY AND TEMPORARY STRUCTURES

D-1 **SITE PLANNING STANDARDS.** All the standards that are unique to expeditionary and temporary structures pertain to site planning. Integrate operational, logistic, and security requirements into the overall configuration of structures, equipment, landscaping, parking, roads, and other features. The most cost-effective solution for mitigating explosive effects on expeditionary and temporary structures is to keep explosives as far away as possible. This is especially critical for these types of structures because hardening may or may not be possible. Dispersed layouts reduce risks from a variety of threats by taking full advantage of terrain and site conditions; therefore, nothing in these standards is intended to discourage dispersal. Costs and requirements for expeditionary and temporary structure hardening are addressed in the *DoD Security Engineering Manual*.

D-1.1 **Standard 1. Minimum Standoff Distances.** The minimum standoff distances apply to all new and existing DoD expeditionary and temporary structures covered by these standards except as otherwise stated below. The minimum standoff distances are presented in Table D-1 and illustrated in Figure D-1. Except as otherwise required in these standards, where the standoff distances in Table D-1 can be provided, use conventional expeditionary and temporary structures without a specific analysis of blast effects. Where those distances are not available, analysis of the structure by an engineer experienced in blast-resistant design is required and hardening will be applied as necessary (in those cases which permit structure hardening) to mitigate the effects of the explosives indicated in Table D-1 at the achievable standoff distance to the appropriate level of protection. The appropriate levels of protection for each structure category are shown in Table D-1, and are described in Table 2-3 and in the *DoD Security Engineering Manual*. The two structure types in Table D-1 respond in fundamentally different ways to explosive effects. Standoff distances in Table D-1 reflect those differences.

D-1.1.1 **Controlled Perimeter.** Measure the standoff distance from the closest point on the structure exterior to the controlled perimeter.

D-1.1.1.1 **Container Structures and Pre-engineered Buildings.** For these structures, apply the guidance in Appendix B.

D-1.1.1.2 **Fabric Covered/Metal Frame Construction and other Expeditionary or Temporary Structures.** Provide the standoff distance from Table D-1 for the applicable structure category.

D-1.1.2 **Parking and Roadways.** Standoff distances for parking and roadways are based on the assumption that there is a controlled perimeter at which larger vehicle bombs will be detected and kept from entering the controlled perimeter. Where there is a controlled perimeter, the standoff distances and explosive weight associated with

parking and roadways in Table D-1 apply unless otherwise stated below. If there is no controlled perimeter, assume that the larger explosive weights upon which the controlled perimeter standoff distances are based (explosive weight I from Table D-1) can access parking and roadways near buildings. Therefore, where there is no controlled perimeter, use standoff distances from parking and roadways according to the distances and the explosive weight associated with controlled perimeters in Table D-1.

D-1.1.2.1 Container Structures and Pre-engineered Buildings. For these structures, apply the guidance in Appendix B.

D-1.1.2.2 Fabric Covered/Metal Frame Construction and other Expeditionary or Temporary Structures. Measure the standoff distance from the closest point on the structure exterior to the closest edge of parking areas and roadways. The minimum standoff for all structures regardless of hardening or analysis is 10 meters (33 feet).

D-1.1.2.3 Existing Fabric Covered/Metal Frame Construction and other Expeditionary or Temporary Structures. Moving existing parking areas and roadways may be difficult to achieve and structural retrofits to existing structures may be prohibitively expensive or technically impossible; therefore, the following operational options are provided for existing inhabited structures where the standoff distances in Table D-1 are impractical to achieve.

D-1.1.2.3.1 Parking Areas. Establish access control to portions of parking areas to ensure unauthorized vehicles are not allowed closer than the required standoff distance. For primary gathering structures and billeting, if access control is provided to prevent unauthorized parking within the required standoff distance, permit controlled parking as close as 10 meters (33 feet) without hardening or analysis.

D-1.1.2.3.2 Roadways. Eliminate parking within the required standoff distances along roads adjacent to existing structures covered by these standards.

D-1.1.3 Trash Containers. Measure the standoff distance from the nearest point of the trash container or trash container enclosure to the closest point on the structure exterior. Where the standoff distance is not available, hardening of trash enclosures to mitigate the direct blast effects and secondary fragment effects of the explosive on the structure is acceptable, if the applicable level of protection can be proven by analysis. If trash enclosures are secured to preclude introduction of objects into the enclosures by unauthorized personnel, locate them closer to the structure as long as they do not violate the unobstructed space provisions of Standard 3 below. Openings in screening materials and gaps between the ground and screens or walls making up an enclosure will not be greater than 150 mm (6 inches).

D-1.1.3.1 Container Structures and Pre-engineered Buildings. For these structures, apply the guidance in Appendix B.

D-1.1.3.2 Fabric Covered/Metal Frame Construction and other Expeditionary or Temporary Structures. Provide the standoff distance from Table D-1 for the applicable structure category.

D-1.2 **Standard 2. Structure Separation.** Structure separation requirements are established to minimize the possibility that an attack on one structure causes injuries or fatalities in adjacent structures. The separation distance is predicated on the potential use of indirect fire weapons.

D-1.2.1 **Billeting and Primary Gathering Structures.**

D-1.2.1.1 **Container Structures and Pre-engineered Buildings.** For these structures, apply the guidance in Appendix B.

D-1.2.1.2 **Fabric Covered/Metal Frame Construction and other Expeditionary or Temporary Structures.** For all new billeting and primary gathering structures, ensure that adjacent structures are separated by at least the distances in Table D-1. Where it is necessary to encroach on those structure separations, analyze the structure and provide hardened structure components as necessary to mitigate the effects of the explosive indicated in Table D-1 to the appropriate level of protection as shown in Table D-1. Levels of protection are described in Table 2-3 and in the *DoD Security Engineering Manual*.

D-1.2.2 **Other Inhabited Structures.** There are no minimum separation distances required for antiterrorism for inhabited buildings other than billeting and primary gathering structures.

D-1.3 **Standard 3. Unobstructed Space.** Keep areas within 10 meters (33 feet) of all expeditionary and temporary structures free of items other than those that are part of the utilities and other supporting infrastructure.

D-2 **ADDITIONAL STANDARDS.** In addition to the specific standards detailed in this appendix, apply the standards from Appendix B to expeditionary and temporary structures as follows:

D-2.1 **Fabric Covered/Metal Frame Construction and other Expeditionary or Temporary Structures.** Apply the following standards from Appendix B to these structures:

D-2.1.1 **Standard 4. Drive-Up/Drop Off Areas.**

D-2.1.2 **Standard 5. Access Roads.**

D-2.1.3 **Standard 11. Windows and Glazed Doors.**

D-2.1.4 **Standard 12. Building Entrance Layout.**

D-2.1.5 **Standard 20. Equipment Bracing.**

D-2.1.6 **Standard 22. Mass Notification.**

D-2.2 **Container Structures and Pre-engineered Buildings.** For these structures, all standards in Appendix B apply.

D-3 **ANTITERRORISM RECOMMENDATIONS.** Apply all recommendations except for Recommendation 7 (Access control for family housing) and Recommendation 8 (Standoff for family housing) from Appendix C to all expeditionary and temporary structures.

**Table D-1 Minimum Standoff Distances and Separation
for Expeditionary and Temporary Structures**

Location	Structure Category	Standoff Distance or Separation Requirements			
		Applicable Level of Protection	Fabric Covered/Metal Frame Structures ⁽¹⁾	Other Expeditionary and Temporary Structures ⁽¹⁾⁽²⁾	Applicable Explosive Weight (TNT) ⁽³⁾
Controlled Perimeter or Parking and Roadways without a Controlled Perimeter	Billeting	Low	31 m (102 ft.)	71 m (233 ft.)	I
	Primary Gathering Structure	Low	31 m (102 ft.)	71 m (233 ft.)	I
	Inhabited Structure	Very Low	24 m (79 ft.)	47 m (154 ft.)	I
Parking and Roadways within a Controlled Perimeter	Billeting	Low	14 m (46 ft.)	32 m (105 ft.)	II
	Primary Gathering Structure	Low	14 m (46 ft.)	32 m (105 ft.)	II
	Inhabited Structure	Very Low	10 m (33 ft.)	23 m (75 ft.)	II
Trash Containers	Billeting	Low	14 m (46 ft.)	32 m (105 ft.)	II
	Primary Gathering Structure	Low	14 m (46 ft.)	32 m (105 ft.)	II
	Inhabited Structure	Very Low	10 m (33 ft.)	23 m (75 ft.)	II
Structure Separation ⁽⁴⁾	Separation between Structure Groups	Low	18 m (59 ft.)	18 m (59 ft.)	III ⁽⁵⁾
	Separation between Structure Rows	Low	9 m (30 ft.)	9 m (30 ft.)	III ⁽⁵⁾
	Separation between Structures in a Row	Very Low	3.5 m (12 ft.)	3.5 m (12 ft.)	III ⁽⁵⁾

(1) See Definitions for a complete description of these structure types.

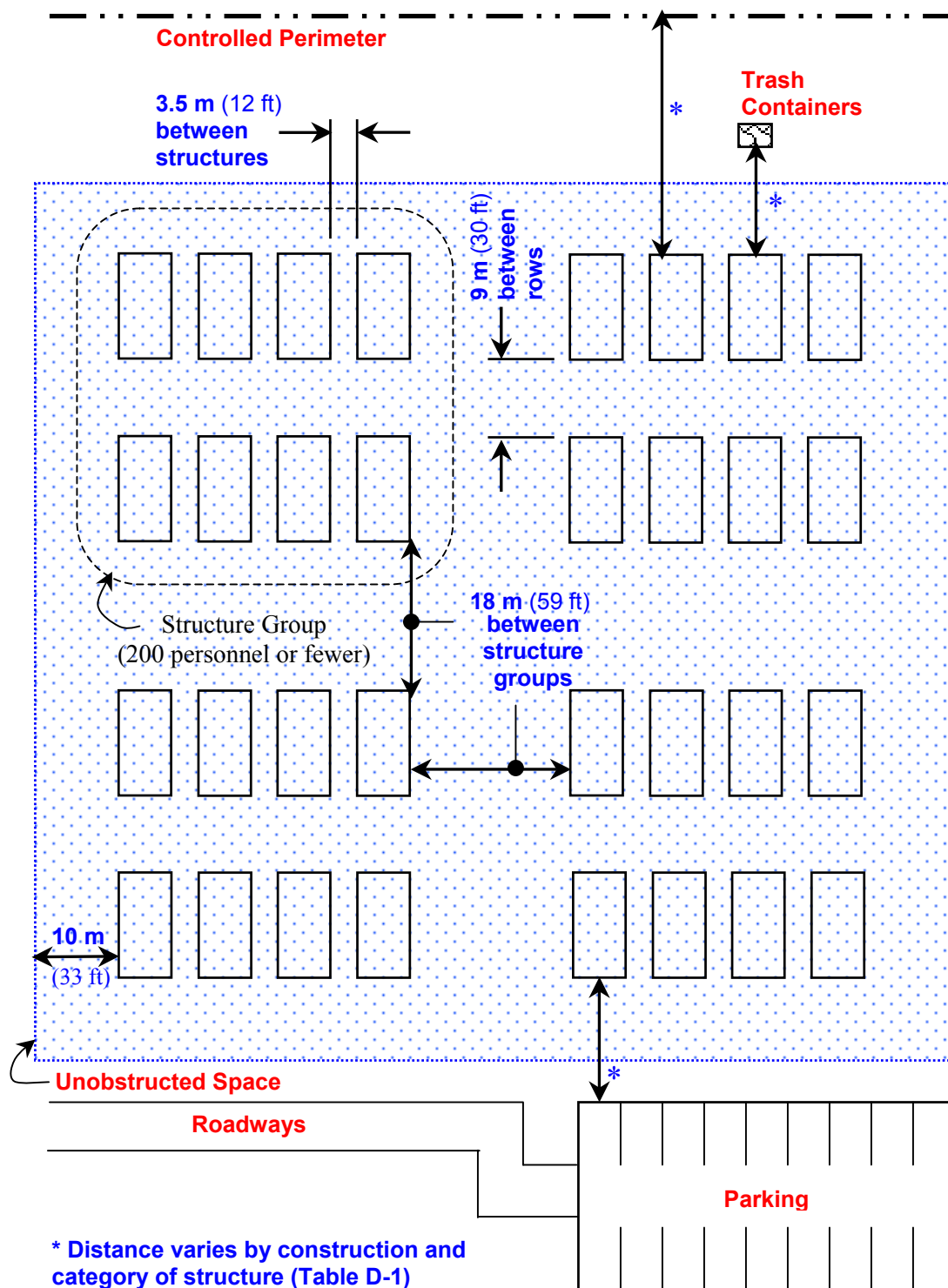
(2) For container structures, Appendix B applies.

(3) See UFC 4-010-10, for the specific explosive weights (kg/pounds of TNT) associated with designations – I, II, III. UFC 4-010-10 is For Official Use Only (FOUO)

(4) Applies to Billeting and Primary Gathering Structures only. No minimum separation distances for other inhabited structures.

(5) Explosive for building separation is an indirect fire (mortar) round.

Figure D-1 Standoff Distances and Separation for Expeditionary and Temporary Structures



ATTACHMENT 13

UFC 1-200-01 DESIGN: GENERAL REQUIREMENTS

NOTE: where this document refers to "MIL-HDBK-1008/C" replace with "UFC3-600-01 Design: Fire Protection Engineering for Facilities".

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UNIFIED FACILITIES CRITERIA (UFC)

DESIGN: GENERAL BUILDING REQUIREMENTS



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UNIFIED FACILITIES CRITERIA (UFC)

DESIGN: GENERAL BUILDING REQUIREMENTS

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Record of Changes (changes are indicated by \1\ ... /1/)

Change No.	Date	Location

FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007, provides planning, design, construction, operations, and maintenance criteria, and applies to all DoD commands. UFC will be used for all service projects and work for other customers where appropriate.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Support Agency (AFCESA) are responsible for administration of the UFC system. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office, as noted below. Defense agencies should contact the preparing service for document interpretation and improvements.

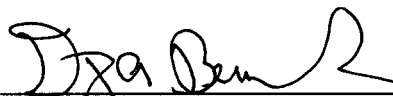
- HQUSACE, ATTN: CECW-E, 441 G Street, NW, Washington, DC 20314-1000, by electronic Criteria Change Request (CCR) form on the TECHINFO site listed below.
- Commander, Atlantic Division, Naval Facilities Engineering Command, 1510 Gilbert Street (ATTN: NAVFAC Engineering Innovation and Criteria Office) Norfolk, Virginia 23511-2699, or ufc@efdlant.navy.mil, by commercial telephone (757) 322-4200 or DSN 262-4200, or by facsimile machine to (757) 322-4416
- Air Force Civil Engineer Support Agency, 139 Barnes Drive, Tyndall Air Force Base, Florida 32403-5319, or larry.spangler@Tyndall.af.mil.

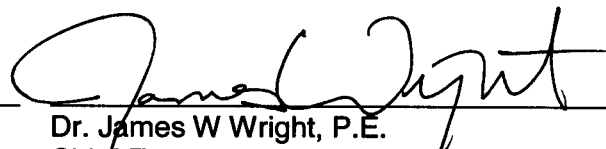
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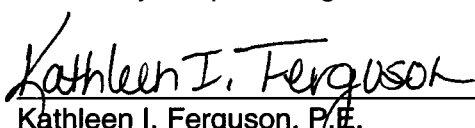
- USACE TECHINFO Internet site <http://www.hnd.usace.army.mil/techinfo>.
- NAVFAC Engineering Innovation and Criteria Office Internet site <http://www.efdlant.navy.mil>
- Construction Criteria Base (CCB) system maintained by the National Institute of Building Sciences at Internet site <http://www.ccb.org>.

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INTRODUCTION

1-1 **PURPOSE.** This UFC provides guidance for the use of model building codes for design and construction of Department of Defense (DOD) facilities.

1-2 **AUTHORITY.** Public Law 104-113, *National Technology Transfer and Advancement Act of 1995*, requires Federal use of private sector consensus standards wherever practicable. The goal of the law is to reduce reliance on Federal standards by using industry standards when there is potential to simplify contracting, increase timeliness and cost effectiveness, and promote the safety and welfare of users.

1-3 **POLICY.** Model building codes must be used as a basis of future development of criteria, standards and guide specifications by all DOD components. This UFC will be revised to address new and updated industry standards as they become available. It is DOD policy to select the best model code provisions and industry standards for military use.

1-4 **IMPLEMENTATION.** This UFC is effective immediately.

1-5 **STRUCTURE OF THE UFC.** This UFC references IBC 2000 and other government and nongovernment standards and criteria. Paragraph 1-6 provides modifications to IBC 2000 and is structured around its format. The IBC has 35 chapters and 10 appendices that contain both technical and administrative provisions. The administrative portions of the code are not applicable to the military construction process. Technical portions of the code are applicable as modified herein.

1-6 **MODIFICATIONS.** The *IBC 2000* provisions are directed toward public health, safety, and general welfare, and represent minimum standards that must be met by the private-sector construction industry. The use of industry standards for DOD projects is intended to promote communication in the marketplace, improve competition, and result in cost savings. However, the military often requires higher standards to achieve more stringent life-cycle performance, or to construct facilities that do not exist in the private sector. Modifications to the model code provisions contained herein are based upon those unique military requirements. In the case of conflicts between the model code and military criteria, use military requirements.

1-6.1 **Fire Protection and Life Safety.** For fire protection and life safety requirements, refer to *MIL-HDBK-1008C, *Fire Protection for Facilities Engineering, Design and Construction*.

1-6.2 **Chapter 1 - ADMINISTRATION.** Delete.

1-6.3 **Chapter 2 - DEFINITIONS.** Definitions apply to terms used in the model codes and are not intended to replace definitions and terms in military documents.

1-6.4 **Chapter 3 - USE AND OCCUPANCY CLASSIFICATION.** Use Chapter 3 and *MIL-HDBK-1008/C.

1-6.5 **Chapter 4 - SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY.** Delete Sections 412.1, 412.2, 414 and 415. Refer to applicable DOD and individual military service standards.

1-6.6 **Chapter 5 - GENERAL BUILDING HEIGHTS AND AREAS.** Refer to *MIL-HDBK-1008/C for limitations on the use of Table 503. In Section 506.3, the area limitations in Table 503 may be increased by 300 percent for Air Force facilities when an approved automatic sprinkler system is installed, regardless of building height.

1-6.7 **Chapter 6 – TYPES OF CONSTRUCTION.** Use this chapter.

1-6.8 **Chapter 7 – FIRE-RESISTANCE-RATED CONSTRUCTION.** Use this chapter.

1-6.9 **Chapter 8 - INTERIOR FINISHES.** Use Chapter 8 and *MIL-HDBK-1008/C.

1-6.10 **Chapter 9 – FIRE PROTECTION SYSTEMS.** Use *MIL-HDBK-1008/C.

1-6.11 **Chapter 10 - MEANS OF EGRESS.** Use *MIL-HDBK-1008/C.

1-6.12 **Chapter 11 - ACCESSIBILITY.** Delete Chapter 11 and use the *Uniform Federal Accessibility Standards (UFAS)* and the *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)*.

1-6.13 **Chapter 12 - INTERIOR ENVIRONMENT.**

1-6.13.1 **Paragraph 1202.2.1.** Delete the last sentence and substitute “Combustion air shall be obtained from attic areas only in accordance with Unified Facility Criteria documents, Unified Facility Guide Specifications and military criteria and guidance documents.”

1-6.13.2 **Paragraph 1202.3.2, Subparagraph 4.** Delete “in accordance with the International Energy Conservation Code.”

1-6.13.3 **Paragraph 1202.4.2.** Delete “the International Mechanical Code and the International Fire Code” and substitute “Unified Facility Criteria documents, Unified Facility Guide Specifications and military criteria and guidance documents.”

1-6.13.4 **Paragraph 1203.1.** Delete, including the exception, and substitute “Temperature control shall be in accordance with Unified Facility Criteria documents, Unified Facility Guide Specifications and military criteria and guidance documents.”

1-6.13.5 **Paragraphs 1206.2 and 1206.3.** Delete and replace with the following:

Table 1-1 Sound Transmission Standards for Party Walls and Floor/Ceiling Construction

Area	FSTC ¹	FIIC ²
Party Walls (unit Separation)	52	-
Primary Habitable Areas (Living, Dining, Family Room, Bedrooms, Circulation)	52	65
Habitable Wet Areas (Kitchen, Bath, Utility, Laundry, Equipment)	52	57
Habitable Areas Over Garages	52	-
<p>Note ¹ Field Sound Transmission Class. See ASTM E336-97, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.</p> <p>Note ² Field Impact Isolation Class. See ASTM E1007-97, Standard Test Method for Field Measurement of Tapping Machine Impact sound Through Floor-Ceiling Assemblies and Associated Support Structure.</p>		

IBC- Air-borne Sound = 50 STC; 45 FSTC ASTM E 90-99, Standard Test Method for Laboratory Measurement of Sound Transmission Loss of Building Partition Elements.

IBC- Structure-borne Sound = 50 IIC; 45 FIIC ASTM E 492-90, Standard Test Method for Laboratory Measurement of Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine.

1-6.13.6 **Paragraph 1207.3.** Delete and replace with following: "Use the latest DoD approved minimum sizes for barracks and dormitory rooms."

1-6.13.7 **Paragraph 1207.4.** Delete. The services define their own parameters for dwelling units.

1-6.14 **Chapter 13 - ENERGY EFFICIENCY.** Delete Chapter 13 and replace with "Federal facilities are required to comply with Public Laws, Executive Orders, Federal Regulations and other mandates regarding energy use, conservation and efficiency standards. In addition, the military has other unique requirements to ensure the planning, design and construction of energy efficient, cost effective facilities that meet mission requirements. These requirements are reflected in criteria and standards used by each military service. Compliance with Unified Facility Criteria documents, Unified Facility Guide Specifications and military criteria documents will ensure that facilities meet all applicable mandates."

1-6.15 **Chapter 14 - EXTERIOR WALLS.** Use Army Technical Instruction 800-01, *Design Criteria* for guidance for air infiltration, glazing area, and moisture migration pertaining to exterior wall systems.

1-6.16 **Chapter 15 - ROOF ASSEMBLIES AND ROOFTOP STRUCTURES.** Use Chapter 15 for basic guidance and NRCA, *Roofing and Waterproofing Manual* and UFGS Division 7 Thermal and Moisture Protection for technical criteria. The use of any

asbestos containing materials in roofing products such as mastics, felts, etc. is prohibited.

1-6.17 **Chapter 16 – STRUCTURAL DESIGN.** Use Chapter 16 in its entirety with the following revisions:

1-6.17.1 **Paragraph 1616.2.3.** Buildings classified as Seismic Use Group III; as defined in Table 1604.5; and within Seismic Design Category D, E, or F; as defined by paragraph 1616.3, require enhanced performance objectives for earthquake response. These facilities will require, in addition to the requirements of Chapter 16, a linear elastic analysis utilizing ‘m’ factors in accordance with the requirements contained in the Technical Instruction TI 809-04 *Seismic Design for Buildings*. For this analysis, use the applicable ground motion and design procedures as defined in TI 809-04. In addition, nonlinear design procedures may be required for these facilities according to Paragraph 5-4.b of TI 809-04. (The classification of a building as Seismic Use Group III should only be used for essential facilities that are required for post-earthquake recovery, and/or house mission-essential functions, with no redundant back-up facility on- or off-site. Mission-essential functions are those absolutely critical to mission continuation of the activity.)

1-6.17.2 **Paragraph 1622.3.7.** Replace the second sentence with the following: “The seismic design of Navy piers and wharves will be according to the Technical Report TR-2069-SHR, *Design Criteria for Earthquake Hazard Mitigation of Navy Piers and Wharves*.”

1-6.17.3 Use Appendices B and C for design at locations outside of CONUS.

1-6.17.4 All inhabited buildings must meet the requirements of **UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*.

1-6.18 **Chapter 17 – STRUCTURAL TESTS AND INSPECTIONS.** Use Chapter 17 and the requirements in the Unified Facilities Guide Specifications.

1-6.19 **Chapter 18 – SOILS AND FOUNDATIONS.** Use Chapter 18 for basic guidance and ***DM 7.2, *Foundations and Earth Structures* for detailed requirements. For Section 1802.2, the foundation and soils investigation requirements are provided as a minimum. Additional requirements provided by the design agency will take precedence. Also use supplemental requirements in UFGS Division 2, Site Work.

1-6.20 **Chapter 19 – CONCRETE.** Use Chapter 19, and UFGS Division 3, Concrete. Chapter 19 supersedes MIL-HDBK 1002/4, *Concrete Structures*.

1-6.21 **Chapter 20 – ALUMINUM.** Use Chapter 20 and UFGS 05500 (Navy or Army as appropriate) *Miscellaneous Metals*. Chapter 20 supersedes MIL-HDBK-1002/6, *Aluminum Structures, Composite Structures, Structural Plastics, and Fiber-Reinforced Composites*.

1-6.22 **Chapter 21 – MASONRY.** Use Chapter 21 and UFGS Division 4, Masonry. Chapter 21 supercedes Army TM 5-809-3, NAVFAC DM-2.9, AFM 88-3,

Chapter 3, *Masonry Structural Design for Buildings*. Give special attention to control cracking in concrete masonry structures using the guidance contained in Tables 1-2 and Table 1-3. Because the Masonry Society has a waiver for use of metric products, brick and concrete masonry units (CMU) are normally not available in metric sizes.

Table 1-2 Recommended Joint Control Spacing^(a)

Vertical Spacing Of Joint Reinforcement With 2-#9 Wires ^(b) (in)	Maximum Ratio Of Panel Length To Wall Height (L/H) ^(c)	Maximum Spacing Of Control Joints ^(d) (ft)
None ^(e)	2	18
16	3	24
8	4	30

^(a) Based on moisture-controlled, type I, concrete masonry in intermediate humidity conditions (ASTM C 90). The designer should adjust the control joint spacing for local conditions. The recommended spacing may be increased 6 ft in humid climates and decreased 6 ft in arid climates.
^(b) Joint reinforcement will be cold-drawn deformed wire with a minimum 9-gauge longitudinal wire size.
^(c) L is the horizontal distance between control joints. H is generally the vertical distance between structural supports.
^(d) The spacing will be reduced approximately 50% near masonry-bonded corners or other similar conditions where one end of the masonry panel is restrained.
^(e) Not recommended for walls exposed to view where control of cracking is important.

**Table 1-3 Maximum Spacing of Vertical Expansion Joints in Brick Walls,
 $\Delta T=100^{\circ}F$**

EXP.JT Width (in)	W x in	Max. Spacing of BEJs ^(a)
3/8	3/16	22
1/2	1/4	30
3/4	3/8	44
1 (MAX)	1/2	60

^(a) Provide expansion joints at 6 to 10 ft from corners.
Recommended vertical BEJ locations.
a. At regular intervals as noted in table above.
b. At changes in wall height or thickness
c. Near wall intersections in "L", "T", and "U"-shaped buildings at approximately 6 to 10 ft) from corners.
d. At other points of stress concentration.
e. At edges of openings.

1-6.23 **Chapter 22 – STEEL.** Use Chapter 22 and UFGS Division 5, Metals. Chapter 22 supersedes MIL-HDBK 1002/3, *Structural Engineering Steel Structures*.

1-6.24 **Chapter 23 – WOOD.** Use Chapter 23 and UFGS Division 6, Wood and Plastics. Chapter 23 supersedes MIL-HDBK 1002/5, *Timber Structures*.

1-6.25 **Chapter 24 - GLASS AND GLAZING.** Use Chapter 24 and MIL-HDBK-1013/12, *Evaluation and Selection Analysis of Security Glazing for Protection Against Ballistic, Bomb, and Forced Entry Tactics* for force protection.

1-6.26 **Chapter 25 – GYPSUM BOARD AND PLASTER.** Use this chapter and applicable UFGS.

1-6.27 **Chapter 26 – PLASTIC.** Use this chapter.

1-6.28 **Chapter 27 – ELECTRICAL.** Delete and use NFPA 70, *National Electrical Code*.

1-6.29 **Chapter 28 – MECHANICAL SYSTEMS.** Delete Section 2801 and substitute “Mechanical appliances, equipment and systems shall be planned, designed and constructed in accordance with Unified Facility Criteria documents, Unified Facility Guide Specifications and military criteria and guidance documents. This will ensure energy efficient, cost effective facilities are provided that meet mission requirements and are in compliance with Public Laws, Executive Orders, Federal Regulations and similar mandates. Also comply with NFPA 54, *National Fuel Gas Code*.”

1-6.30 **Chapter 29 – PLUMBING SYSTEMS.** Delete Paragraph 2901.1 and substitute “Plumbing appliances, equipment and systems shall be planned, designed and constructed in accordance with the Unified Facility Criteria documents, Unified Facility Guide Specifications and military criteria and guidance documents. This will ensure energy efficient, water conserving and cost effective facilities are provided that meet mission requirements and are in compliance with Public Laws, Executive Orders, Federal Regulations and similar mandates.”

1-6.31 **Chapter 30 – ELEVATORS AND CONVEYING SYSTEMS.** ITG 01-01, *Interim Technical Guidance Elevator Design* supersedes Chapter 30 wherever applicable.

1-6.32 **Chapter 31 - SPECIAL CONSTRUCTION.** Use entire chapter except Sections 3107 and 3108.

1-6.33 **Chapter 32 - ENCROACHMENT INTO THE PUBLIC RIGHT-OF-WAY.** Delete.

1-6.34 **Chapter 33 - SAFEGUARDS DURING CONSTRUCTION.** Delete.

1-6.35 **Chapter 34 - EXISTING STRUCTURES.** Delete entire chapter and refer to *MIL-HDBK-1008/C and ASCE 11-99, *Guidelines for Structural Condition Assessment of Existing Buildings*. Use ASCE 11-99 to conduct structural condition assessment of existing buildings prior to major additions, alterations or repairs.

1-6.36 **Chapter 35 - REFERENCED STANDARDS.** Use the chapter.

1-6.37 **Appendixes A, B, D, E, G, and J.** Delete.

1-6.38 **Appendix H - SIGNS.** Delete Appendix H. Follow the requirements of ADAAG and individual signage publications for each military service.

APPENDIX A

REFERENCES

GOVERNMENT PUBLICATIONS:

1. Unified Facilities Criteria

<http://criteria.navfac.navy.mil/criteria>

<http://www.hnd.usace.army.mil/techinfo/index.asp>

**UFC 4-010-01, Minimum Antiterrorism Standards for Buildings. (This UFC is due to be published 1 Aug 2002. For questions, please contact the preparing activity.)

2. Naval Facilities Engineering Command (NAVFAC)

1510 Gilbert Street
Norfolk, VA 23511-2669

<http://criteria.navfac.navy.mil/criteria>
<http://www.nfesc.navy.mil>

ITG 01-01, Interim Technical Guidance Elevator Design

*MIL-HDBK-1008C, Fire Protection for Facilities Engineering, Design and Construction. (Will be replaced by UFC 3-600-01, Fire Protection for Facilities Engineering, Design and Construction, September 2002. For questions, please contact the preparing activity.)

MIL-HDBK-1013/12, Evaluation and Selection Analysis of Security Glazing for Protection Against Ballistic, Bomb, and Forced Entry Tactics. (Restricted access. Contact your government sponsor if required.)

***DM 7.2, Foundations and Earth Structures. (This Design Manual is due to be replaced by UFC 3-220-01, Geotechnical Engineering by the end of calendar year 2002. For questions, please contact the preparing activity.)

Technical Report, TR-2069-SHR, Design Criteria for Earthquake Hazard mitigation of Navy Piers and Wharves, February 1987.

3. U.S. Army Corps of Engineers (USACE)

4820 University Square,
Huntsville, AL 35816

Technical Instruction 800-01, Design Criteria

Technical Instruction 809-04, Seismic

<http://www.hnd.usace.army.mil/techinfo/index.asp>

Design for Buildings

Technical Instruction 809-29, Structural Considerations for Metal Roofing

Technical Instruction 809-53, Commentary on Roofing Systems

4. National Archives and Records Administration (NARA)
gpoaccess@gpo.gov
Telephone (202) 512-1530
Toll Free (888) 293-6498
Fax (202) 512-1262

Public Law 104-113, National Technology Transfer and Advancement Act of 1995

5. <http://www.access-board.gov/ufas/ufas-html/ufas.htm>

Uniform Federal Accessibility Standards (UFAS)

6. <http://www.access-board/adaag/html/adaag.htm>

Americans with Disabilities Act
Accessibility Guidelines for Building and Facilities (ADAAG)

NON-GOVERNMENT PUBLICATIONS:

1. International Code Council (ICC)
5203 Leesburg Pike, Suite 600
Falls Church, VA 22041
(703) 931-4533
(703) 379-1546 fax

International Building Code (IBC) 2000

<http://www.intlcode.org/>

2. National Fire Protection Association (NFPA)
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101
(617) 770-3000

NFPA 70, National Electrical Code

NFPA 54, National Fuel Gas Code

www.nfpa.org

3. ASTM International
100 Barr Harbor Drive
PO Box C700
West Conshohocken, PA 19428-2959

ASTM E336-97, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings

ASTM E1007-97, Standard Test Method

www.astm.org

for field Measurement of Tapping Machine
Impact Sound Through Floor-Ceiling
Assemblies and Associated Support
Structure

ASTM E90-99, Standard Test Method for
Laboratory Measurement of Sound
Transmission Loss of Building Partition
Elements.

ASTM E492-90, Standard Test Method for
Laboratory Measurement of Sound
Transmission Loss Through Floor-Ceiling
Assemblies Using the Tapping Machine

4. American Society of Civil Engineers
1801 Alexander Bell Drive
Reston, Virginia 20191-4400
1-800-548-2723 toll free
(703) 295-6300 international
(703) 295-6222 fax
(703) 295-6444 faxback

ASCE 7, Minimum Design Loads for
Buildings and Other Structures.

ASCE 11-99, Guidelines for Structural
Condition Assessment of Existing
Buildings.

<http://www.asce.org>

5. National Roofing Contractors
Association (NRCA)
10255 W. Higgins Road, Suite 600,
Rosemont, IL 60018
(847) 299-9070;
fax (847) 299-1183;
e-mail nrca@nrca.net

Roofing and Waterproofing Manual, 5th
Edition, 2001

<http://www.nrca.net/>

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APPENDIX B

Wind Parameters (as published in ITG 01-2, *Minimum Design Loads for Buildings and Other Structures*)

ID	Name	Ground Snow Load (PSF)	Frost Penetration (in)	Basic Wind Speed (MPH)
1	Woomera, Australia	0	0	80
2	Chievres, Belgium	15	25	115
3	Manama, Bahrain	0	5	80
4	Guantanamo Bay, Cuba	0	5	90
5	Copenhagen, Denmark	25	35	90
6	Diego Garcia, Diego Garcia	0	5	105
7	Stuttgart, Germany	25	40	60
8	Heidelberg, Germany	25	30	60
9	Bad Kreuznach, Germany	25	30	60
10	Grefrath, Germany	25	20	60
11	Wuerzburg, Germany	25	35	60
12	Grafenwoehr, Germany	25	5	60
13	Hanau, Germany	25	25	60
14	Berchtesgaden, Germany	30	50	60
15	Landstuhl, Germany	25	40	60
16	Spangdahlem, Germany	25	35	60
17	Crete, Greece	5	5	85
18	Thule, Greenland	25	255	130
19	Agana Fleet Activities, Guam	0	5 (1)	155(2)
20	Agana Ship Repair, Guam	0	5(1)	155(2)
21	Agana Anderson AFB, Guam	0	5(1)	155(2)
22	Keflavik, Iceland	25	50	110
23	Vicenza, Italy	35	25	80
24	Gaeta, Italy	20	5	80
25	La Maddalena, Italy	20	5	80
26	Naples, Italy	20	5	80
27	Sigonella, Italy	20	5	80
28	Pordenone, Italy	35	25	80
29	Atsugi, Japan	15	25(3)	120
30	Iwakuni, Japan	0	10(3)	120
31	Sagamihara, Japan	10	5(3)	110
32	Okinawa, Japan	0	5(3)	110
33	Naha, Japan	0	5(3)	110
34	Koza City, Japan	0	5(3)	110
35	Misawa, Japan	40	50(3)	110
36	Tokyo, Japan	10	5(3)	110
37	Sasebo, Japan	10	5(3)	100
38	Atsugi, Japan	20	25(3)	120

ID	Name	Ground Snow Load (PSF)	Frost Penetration (in)	Basic Wind Speed (MPH)
39	Yokosuka NCTC, Japan	20	5(3)	110
40	Yokosuka CFA, Japan	20	5(3)	110
41	Yokosuka Ship Repair, Japan	20	5(3)	110
42	Teague, Korea	20	40(4)	110
43	Pyongtaek, Korea	20	50(4)	100
44	Uijongbu, Korea	20	45(4)	105
45	Seoul, Korea	20	45(4)	105
46	Chinhae, Korea	20	15(4)	105
47	Kunsan, Korea	20	30(4)	100
48	Songtan, Korea	20	50(4)	95
49	Port Lyautey, Morocco	0	5	85
50	Schirmen, Netherlands	15	20	80
51	Antarctica	30	190	105
52	Balboa, Panama	0	5	110
53	Panama City, Panama	0	5	90
54	Colon, Panama	0	5	95
55	Galeta Island, Panama	0	5	90
56	Panama Canal, Panama	0	5	110
57	Terceira, Portugal-Azores	0	5	120
58	Guaynaba, Puerto Rico	0	5	120(5)
59	San Juan, Puerto Rico	0	5	120(5)
60	Sabana Seca, Puerto Rico	0	5	120(5)
61	Roosevelt Roads, Puerto Rico	0	5	140(5)
62	Rota, Spain	5	5	85
63	Adana, Turkey	0	5	70
64	Diyarbakir, Turkey	15	25	105
65	Southampton, England	15	10	85
66	London, England	15	15	100
67	Edzell, England	15	25	85
68	Croughton, England	15	15	100
69	Lakenheath, England	15	15	100
70	Mildenhall, England	15	15	100
71	Antigua, Virgin Islands	0	5	140(6)

Notes:

- (1) No frost in Guam or Diego Garcia. Need to identify as minimum footing depth.
- (2) ASCE 7 recommends 170 m.p.h. Use ASCE value.
- (3) Need to confirm large variance in frost penetration for Japan.
- (4) Need to confirm large variance in frost penetration for Korea.
- (5) ASCE 7 recommends 145 m.p.h. Use ASCE value.
- (6) ASCE 7 recommends 145 m.p.h. Use ASCE value.

APPENDIX C

Seismic Parameters

			Ss	S1
AFRICA	ALGERIA	Alger	1.24	0.56
		Olan	1.24	0.56
	ANGOLA			
		Luanda	0.06	0.06
	BENIN			
		Cotonou	0.06	0.06
	BOTSWANA			
		Gaborone	0.06	0.06
	BURUNDI			
		Bujumbura	1.24	0.56
	CAMEROON			
		Douala	0.06	0.06
		Yaounde	0.06	0.06
	CAPE VERDE			
		Praia	0.06	0.06
	CENTRAL AFRICAN REPUBLIC			
		Bangui	0.06	0.06
	CHAD			
		Ndjamena	0.06	0.06
	CONGO			
		Brazzaville	0.06	0.06
	DJIBOUTI			
		Djibouti	1.24	0.56
	EGYPT			
		Alexandria	0.62	0.28
		Cairo	0.62	0.28
		Port Said	0.62	0.28
	EQUATORIAL GUINEA			
		Malabo	0.06	0.06
	ETHIOPIA			
		Addis Ababa	1.24	0.56
		Asmara	1.24	0.56
	GABON			
		Libreville	0.06	0.06
	GAMBIA			
		Banjul	0.06	0.06
	GHANA			
		Accra	1.24	0.56
	GUINEA			
		Bissau	0.31	0.14
		Conakry	0.06	0.06
	IVORY COAST			
		Abidjan	0.06	0.06
	KENYA			
		Nairobi	0.62	0.28

	LESOTHO			
		Maseru	0.62	0.28
	LIBERIA			
		Monrovia	0.31	0.14
	LIBYA			
		Tripoli	0.62	0.28
		Wheelus AFB	0.62	0.28
	MALAGASY REPUBLIC			
		Tananarive	0.06	0.06
	MALAWI			
		Blantyre	1.24	0.56
		Lilongwe	1.24	0.56
		Zomba	1.24	0.56
	MALI			
		Bamako	0.06	0.06
	MAURITANIA			
		Nouakchott	0.06	0.06
	MAURITIUS			
		Port Louis	0.06	0.06
	MOROCCO			
		Casablanca	0.62	0.28
		Port Lyautey	0.31	0.14
		Rabat	0.62	0.28
		Tangier	1.24	0.56
	MOZAMBIQUE			
		Maputo	0.62	0.28
	NIGER			
		Niamey	0.06	0.06
	NIGERIA			
		Ibadan	0.06	0.06
		Kaduna	0.06	0.06
		Lagos	0.06	0.06
	REPUBLIC OF RWANDA			
		Kigali	1.24	0.56
	SENEGAL			
		Dakar	0.06	0.06
	SEYCHELLES			
		Victoria	0.06	0.06
	SIERRA LEONE			
		Freetown	0.06	0.06
	SOMALIA			
		Mogadishu	0.06	0.06
	SOUTH AFRICA			
		Cape Town	1.24	0.56
		Durban	0.62	0.28
		Johannesburg	0.62	0.28
		Natal	0.31	0.14
		Pretoria	0.62	0.28
	SWAZILAND			
		Mbabane	0.62	0.28
	TANZANIA			
		Dar es Salaam	0.62	0.28

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		Zanzibar	0.62	0.28
	TOGO			
		Lome	0.31	0.14
	TUNISIA			
		Tunis	1.24	0.56
	UGANDA			
		Kampala	0.62	0.28
	UPPER VOLTA			
		Ougadougou	0.06	0.06
	ZAIRE			
		Bukavu	1.24	0.56
		Kinshasa	0.06	0.06
		Lubumbashi	0.62	0.28
	ZAMBIA			
		Lusaka	0.62	0.28
	ZIMBABWE			
		Harare		
ASIA	AFGHANISTAN			
		Kabul	1.65	0.75
	BAHRAIN			
		Manama	0.25	0.10
	BANGLADESH			
		Dacca	1.24	0.56
	BRUNEI			
		Bandar Seri Begawan	0.31	0.14
	BURMA			
		Mandalay	1.24	0.56
		Rangoon	1.24	0.56
	CHINA			
		Canton	0.62	0.28
		Chengdu	1.24	0.56
		Nanking	0.62	0.28
		Peking	1.65	0.75
		Shanghai	0.62	0.28
		Shengyang	1.65	0.75
		Tibwa	1.65	0.75
		Tsingtao	1.24	0.56
		Wuhan	0.62	0.28
	CYPRUS			
		Nicosia	1.24	0.56
	HONG KONG			
		Hong Kong	0.62	0.28
	INDIA			
		Bombay	1.24	0.56
		Calcutta	0.62	0.28
		Madras	0.31	0.14
		New Delhi	1.24	0.56
	INDONESIA			
		Bandung	1.65	0.75
		Jakarta	1.65	0.75
		Medan	1.24	0.56

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		Surabaya	1.65	0.75
	IRAN			
		Isfahan	1.24	0.56
		Shiraz	1.24	0.56
		Tabriz	1.65	0.75
		Tehran	1.65	0.75
	IRAQ			
		Baghdad	1.24	0.56
		Basra	0.31	0.14
	ISRAEL			
		Haifa	1.24	0.56
		Jerusalem	1.24	0.56
		Tel Aviv	1.24	0.56
	JAPAN			
		Fukuoka	1.24	0.56
		Itazuke AFB	1.24	0.56
		Misawa AFB	1.24	0.56
		Naha, Okinawa	1.65	0.75
		Osaka/Kobe	1.65	0.75
		Sapporo	1.24	0.56
		Tokyo	1.65	0.75
		Wakkanai	1.24	0.56
		Yokohama	1.65	0.75
		Yakota	1.65	0.75
	JORDAN			
		Amman	1.24	0.56
	KOREA			
		Kwangju	0.31	0.14
		Kimhae	0.31	0.14
		Pusan	0.31	0.14
		Seoul	0.06	0.06
	KUWAIT			
		Kuwait	0.31	0.14
	LAOS			
		Vientiane	0.31	0.14
	LEBANON			
		Beirut	1.24	0.56
	MALAYSIA			
		Kuala Lumpur	0.31	0.14
	NEPAL			
		Kathmandu	1.65	0.75
	OMAN			
		Muscat	0.62	0.28
	PAKISTAN			
		Islamabad	1.68	0.75
		Karachi	1.65	0.75
		Lahore	0.62	0.28
		Peshawar	1.65	0.75
	QUATAR			
		Doha	0.06	0.06
	SAUDI ARABIA			

		Al Batin	0.31	0.14
		Dhahran	0.31	0.14
		Jiddah	0.62	0.28
		Khamis Mushayf	0.310.14	
		Riyadh	0.06	0.06
	SINGAPORE			
		All	0.31	0.14
	SOUTH YEMEN			
		Aden City	1.24	0.56
	SRI LANKA			
		Colombo	0.06	0.06
	SYRIA			
		Allepo	1.24	0.56
		Damascus	1.24	0.56
	TAIWAN			
		All	1.65	0.75
	THAILAND			
		Bangkok	0.31	0.14
		Chinmg Mai	0.62	0.28
		Dongkhia	0.06	0.06
		Udorn	0.31	0.14
	TURKEY			
		Adana	0.62	0.28
		Ankara	0.62	0.28
		Istanbul	1.65	0.75
		Izmir	1.65	0.75
		Karamursel	1.24	0.56
	UNITED ARAB EMIRATES			
		Abu Dhabi	0.06	0.06
		Dubai	01.06	0.06
	VIETNAM			
		Ho Chi Minh City		
		(Saigon)	0.06	0.06
	YEMEN ARAB REPUBLIC			
		Sanaa	1.24	0.56
ATLANTIC OCEAN AREA	AZOREA			
		All	0.62	0.28
	BURMUDA			
		All	0.31	0.14
CARIBBEAN SEA	BAHAMA ISLANDS			
		All	0.31	0.14
	CUBA			
		All	0.62	0.28
	DOMINICAN REPUBLIC			
		Santo Domingo	1.24	0.56
	FRENCH WEST INDIES			
		Martinique	1.24	0.56
	GRENADA			
		Saint Georges	1.24	0.56

	HAITI			
		Port au Prince	1.24	0.56
	JAMAICA			
		Kingston	1.24	0.56
	LEEWARD ISLANDS			
		All	1.24	0.56
	TRINADAD AND TOBAGO			
		All	1.24	0.56
CENTAL AMERICA	BELIZE			
		Beimopan	0.26	0.28
	CANAL ZONE			
		All	0.62	0.28
	COSTA RICA			
		San Jose	12.4	0.56
	EL SALVADORE			
		San Salvador	1.65	0.75
	GUATEMALA			
		Guatemala	1.65	0.75
	HONDURAS			
		Tegucigalpa	1.24	0.56
	NICARAGUA			
		Managua	1.65	0.75
	PANAMA			
		Colon	1.24	0.56
		Galeta	0.83	0.38
		Panama	1.24	0.56
	MEXICO			
		Ciudad Juarez	0.62	0.28
		Guadalajara	1.24	0.56
		Hermosillo	1.24	0.56
		Matamoros	0.06	0.06
		Mazatlan	0.60	0.28
		Merida	0.06	0.06
		Mexico City	1.24	0.56
		Monterrey	0.06	0.06
		Nuevo Laredo	0.06	0.06
		Tijuana	1.24	0.56
EUROPE	ALBANIA			
		Tirana	1.24	0.56
	AUSTRIA			
		Salzburg	0.62	0.28
		Vienna	0.62	0.28
	BELGIUM			
		Antwerp	0.31	0.14
		Brussels	0.62	0.28
	BULGARIA			
		Sofia	1.24	0.56
	CZECH REPUBLIC			
		Prague	0.31	0.14
	DENMARK			
		Copenhagen	0.31	0.14

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	FINLAND			
		Helsinki	0.31	0.14
	FRANCE			
		Bordeaux	0.62	0.28
		Lyon	0.31	0.14
		Marseille	1.24	0.56
		Nice	1.24	0.56
		Strasbourg	0.62	0.28
	GERMANY, FEDERAL REPUBLIC			
		Berlin	0.06	0.06
		Bonn	0.62	0.28
		Bremen	0.06	0.06
		Dusseldorf	0.31	0.14
		Frankfurt	0.62	0.28
		Hamburg	0.06	0.06
		Munich	0.31	0.14
		Stuttgart	0.62	0.28
		Vaihingen	0.62	0.28
	GREECE			
		Athens	1.24	0.56
		Kavalla	1.65	0.75
		Makri	1.65	0.75
		Rhodes	1.24	0.56
		Souda Bay	1.65	0.75
		Thessaloniki	1.65	0.75
	HUNGARY			
		Budapest	0.62	0.28
	ICELAND			
		Keflavik	1.0	0.40
		Reykjavik	1.65	0.75
	IRELAND			
		Dublin	0.06	0.06
	ITALY			
		Aviano AFG	1.24	0.56
		Brindisi	0.06	0.06
		Florence	1.24	0.56
		Gaeta	0.50	0.21
		Genoa	1.24	0.56
		La Maddalena	0.22	0.09
		Milan	0.62	0.28
		Naples	0.67	0.27
		Palermo	1.24	0.56
		Rome	0.62	0.28
		Sicily	1.20	0.31
		Trieste	1.24	0.56
		Turin	0.62	0.28
	LUXEMBOURG			
		Luxembourg	0.31	0.14
	MALTA			
		Valletta	0.62	0.28
	NETHERLANDS			
		All	0.06	0.06

	NORWAY			
		Oslo	0.62	0.28
	POLAND			
		Krakow	0.62	0.28
		Poznan	0.31	0.14
		Warszawa	0.31	0.14
	PORTUGAL			
		Lisbon	1.65	0.75
		Oporto	1.24	0.56
	ROMANIA			
		Bucharest	1.24	0.56
	SLOVAK REPUBLIC			
		Bratislava	0.62	0.28
	SPAIN			
		Barcelona	0.62	0.28
		Bilbao	0.62	0.28
		Madrid	0.06	0.06
		Rota	0.75	0.30
		Sevilla	0.62	0.28
	SWEDEN			
		Goteborg	0.62	0.28
		Stockholm	0.31	0.14
	SWITZERLAND			
		Bern	0.62	0.28
		Geneva	0.31	0.14
		Zurich	0.62	0.28
	UNITED KINGDOM			
		Belfast	0.06	0.06
		Edinburgh	0.31	0.14
		Edzell	0.31	0.14
		Glasgow/Renfrew	0.31	0.14
		Hamilton	0.31	0.14
		Liverpool	0.31	0.14
		London	0.125	0.025
		Londonderry	0.31	0.14
		St. Mawgan	0.20	0.04
		Thurso	0.31	0.14
	USSR			
		Kiev	0.06	0.06
		Leningrad	0.06	0.06
		Moscow	0.06	0.06
	YUGOSLAVIA			
		Belgrade	0.62	0.28
		Zagreb	1.24	0.56
NORTH AMERICA	GREENLAND			
		All	0.31	0.14
	CANADA			
		Argentina NAS	0.62	0.28
		Calgary, Alb	0.31	0.14
		Churchill, Man	0.06	0.06

		Cold Lake, Alb	0.31	0.14
		Edmonton, Alb	0.31	0.14
		E. Harmon, AFB	0.62	0.28
		Fort Williams, Ont	0.06	0.06
		Frobisher N.W. Ter	0.06	0.06
		Goose Airport	0.31	0.14
		Halifax	0.31	0.14
		Montreal, Quebec	1.24	0.56
		Ottawa, Ont	0.62	0.28
		St. Johns Nfld	1.24	0.56
		Toronto, Ont	0.31	0.14
		Vancouver	1.24	0.56
		Winnepeg, Man	0.31	0.14
SOUTH AMERICA	ARGENTINA			
		Buenos Aires	0.25	0.10
	BRAZIL			
		Belem	0.06	0.06
		Belo Horizonte	0.06	0.06
		Brasilia	0.06	0.06
		Manaus	0.06	0.06
		Porto Allegre	0.06	0.06
		Recife	0.06	0.06
		Rio de Janeiro	0.06	0.06
		Salvador	0.06	0.06
		San Paulo	0.31	0.14
	BOLIVIA			
		La Paz	1.24	0.56
		Santa Cruz	0.31	0.14
	CHILE			
		Santiago	1.65	0.75
		Valparaiso	1.65	0.75
	COLOMBIA			
		Bogotá	1.24	0.56
	ECUADOR			
		Quito	1.65	0.75
		Guayaquil	1.24	0.56
	PARAGUAY			
		Asuncion	0.06	0.06
	PERU			
		Lima	1.65	0.75
		Plura	1.65	0.75
	URUGUAY			
		Montevideo	0.06	0.06
	VENEZUELA			
		Maracaibo	0.62	0.28
		Caracas	1.65	0.75
PACIFIC OCEAN AREA	AUSTRALIA			
		Brisbane	0.31	0.14
		Canberra	0.31	0.14
		Melbourne	0.31	0.14

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		Perth	0.31	0.14
		Sydney	0.31	0.14
	CAROLINE ISLANDS			
		Koror, Paulau Is	0.62	0.28
		Ponape	0.06	0.06
	FIJI			
		Suva	1.24	0.56
	JOHNSON ISLAND			
		All	0.31	0.14
	MARIANA ISLANDS			
		Saipan	1.24	0.56
		Tinian	1.24	0.56
	MARSHAL ISLANDS			
		All	0.31	0.14
	NEW ZEALAND			
		Auckland	1.24	0.56
		Wellington	1.65	0.75
	PAPAU NEW GUINEA			
		Port Moresby	1.24	0.56
	PHILLIPINE ISLANDS			
		Cebu	1.65	0.75
		Manila	1.65	0.75
		Baguio	1.24	0.56
	SAMOA			
		All	1.24	0.56
	WAKE ISLAND			
		All	0.06	0.06

ATTACHMENT 14
PROHIBITED AND ACCEPTABLE PLANTS LIST

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ATTACHEMENT 14: PROHIBITED AND ACCEPTABLE PLANTS LIST

PROHIBITED TREES

BOTANICAL NAME	COMMON NAME
ACER MACROPHYLLUM	BIGLEAF MAPLE
ACER NEGUNDO	BOX ELDER
ACER SACCHARINUM	SILVER MAPLE
ALNUS SP.	ALDER
ARAUCARIA ARAVCANNA	MONKEY PUZZLE
ARBUTUS MENZIESII	MADRONE
BETULA PENDULA	WHITE BIRCH
CATALPA SP.	CATALPA
CRATAEGUS SP.	HAWTHORN
ELAEAGNUS ANGUSTIFOLIA	RUSSIAN OLIVE
LABURNUM SP.	GOLDEN CHAIN TREE
PICEA PUNGENS	COLORADO SPRUCE
PLATANUS X ACERIFOLIA	LONDON PLANE TREE
PLATANUS OCCIDENTALIS	SYCAMORE
POPULUS TRICHOCARPA	BLACK COTTONWOOD
POPULUS SP.	POPLARS
ROBINIA PSEUDOACACIA	BLACK LOCUST
SALIX SP.	WILLOW
SOPHORA JAPONICA	PAGODA TREE
SORBUS AUCUPARIA	MOUNTAIN ASH
ULMUS AMERICANA	AMERICAN ELM
ULMUS PARVIFOLIA	CHINESE ELM
ULMUS PUMILA	SIBERIAN ELM

Annual flowers shall not be used. Perennials, except for hardy, drought tolerant ground covers shall not be used.

ACCEPTABLE PLANTS

* Shall not be used in turf areas or overhanging hardscapes (sidewalks, roads, parking etc.)

BOTANICAL NAME	COMMON NAME
TREES	
ACER CIRCINATUM	VINE MAPLE
ACER GINNALA 'FLAME'	AMUR MAPLE
ACER GRISEUM	PAPERBARK MAPLE
ACER PALMATUM	JAPANESE MAPLE
ACER RUBRUM 'SCARLET SENTINEL'	RED MAPLE SENTINEL
ACER SACCHRUM 'GREEN MOUNTAIN	GREEN MOUNTAIN SUGAR MAPLE
BETULA JACQUEMONTII	WHITEBARKED HIMALAYAN BIRCH
CALOCEDRUS DECURRENS	INCENSE CEDAR
CARPINUS BETULUS 'FASTIGIATA'	COLUMNAR HORNBEAM
CERCIDIPHYLLUM JAPONICUM	KATSURA
CHAMAECYPARIS NOOTKATENSIS	ALASKA YELLOW CEDAR
CHAMAECYPARIS OBTUSA 'GRACILIS'	SLENDER HINOKI CYPRESS
CORNUS KOUSA VAR. CHINENSIS	KOUSA DOGWOOD
COTINUS COGGYGRIA 'PURPUREUS'	SMOKE TREE
CRYPTOMERIA JAPONICA	JAPANESE CRYPTOMERIA
CUPRESSOCYPARIS LEYLANDII	LEYLAND CYPRESS
FRAXINUS PENNSYLVANICA 'PATMORE,' 'MARSHALL'S SEEDLESS'	PATMORE ASH, SEEDLESS GREEN ASH
GINKGO BILOBA (plant male trees only)	MAIDENHAIR TREE
GLEDITSIA TRICANTHOS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST
JUNIPERUS CHINENSIS 'ROBUSTA GREEN'	ROBUSTA GREEN CHINESE JUNIPER
JUNIPERUS SCOPULORUM 'BLUE HEAVEN'	ROCKY MOUNTAIN JUNIPER
*LIQUIDAMBAR STYRACIFLUA	SWEET GUM
*LIRODENDRON TULIPIFERA	TULIP TREE
MALUS 'CENTURION'	FLOWERING CRABAPPLE
MALUS 'PRAIRIEFIRE'	PRAIRIEFIRE CRABAPPLE
MALUS TRANSITORIA 'SCHMIDTCUTLEAF'	GOLDEN RAINDROPS CRABAPPLE
PINUS CONTORTA	SHORE PINE
*PINUS MUGO MUGO	MUGO PINE
PINUS NIGRA	AUSTRIAN PINE
PINUS PONDEROSA	PONDEROSA PINE
PINUS SYLVESTRUS	SCOTCH PINE
PRUNUS SUBHIRTELLA 'AUTUMNALIS'	AUTUMN FLOWERING CHERRY
PSEUDOTSUGA MENZIESII	DOUGLAS FIR
PYRUS CALLERYANA 'CHANTICLEER'	FLOWERING PEAR
QUERCUS GARRYANA	OREGON OAK
QUERCUS ROBUR 'FASTIGIATA'	COLUMNAR ENGLISH OAK
QUERCUS RUBRA	RED OAK
SEQUOIA SEMPERVIRENS	COAST REDWOOD
STYRAX JAPONICA	JAPANESE SNOWDROP TREE

THUJA PLICATA	WESTERN RED CEDAR
THUJA PLICATA 'HOGAN'	HOGAN CEDAR
TILIA CORDATA 'GREENSPIRE'	LITTLE LEAF LINDEN
TSUGA HETEROPHYLLA	WESTERN HEMLOCK
TSUGA CANADENSIS	CANADA HEMLOCK
TSUGA HETEROPHYLLA	WESTERN HEMLOCK
TSUGA CANADENSIS	CANADA HEMLOCK
SHRUBS	
AMELANCHIER ALNIFOLIA	SASKATOON
AMELANCHIER LAEVIS	SERVICEBERRY
ARBUTUS UNEDO	STRAWBERRY TREE
ARBUTUS UNEDO 'COMPACTA'	COMPACT STRAWBERRY TREE
BUXUS SEMPERVIRENS 'SUFFRUTICOSA'	TRUE DWARF BOXWOOD
CHAMAECYPARIS OBTUSA 'NANA GRACILIS'	DWARF HINOKI CYPRESS
CISTUS PRAECOX	ROCKROSE
CISTIS X PURPUREUS	PURPLE ROCKROSE
CORNUS STOLONIFERA	REDOSIER DOGWOOD
CORNUS STOLONIFERA 'KELSEYII'	DWARF REDOSIER DOGWOOD
COTONEASTER PARNEYI	PARNEYI COTONEASTER
DAPHNE CNEORUM 'RUBY GLOW'	RUBY GLOW GARLAND DAPHNE
ELEAGNUS PUNGENS 'MACULATA'	GOLDEN ELEAGNUS
EUONYMUS ALATA 'COMPACTA'	COMPACT BURNING BUSH
FOTHERGILLA GARDENII	DWARF FOTHERGILLA
HEBE 'AUTUMN GLORY', 'PATTY'S PURPLE,' etc..	HEBE
HELIOTRICHON SEMPERVIRENS	BLUE OAT GRASS
HOLODISCUS DISCOLOR	OCEAN SPRAY
ILEX CRENATA 'GREEN ISLAND'	JAPANESE HOLLY
JUNIPERUS CONFERTA 'BLUE PACIFIC'	SHORE JUNIPER
LONICERA PILEATA	PRIVET HONEYSUCKLE
MAHONIA AQUIFOLIUM	TALL OREGON GRAPE
MAHONIA AQUIFOLIUM 'COMPACTUM'	COMPACT OREGON GRAPE
MAHONIA REPENS CREEPING MAHONIA	CREEPING MAHONIA
MYRICA CALIFORNICA	WAXMYRTLE
NANDINA DOMESTICA many varieties	HEAVENLY BAMBOO
OEMLERIA CERASIFORMIS	INDIAN PLUM
OSMANTHUS DELAVAYI	OSMANTHUS
PICEA ABIES 'NIDIFORMIS'	BIRD'S NEST SPRUCE
POLYSTICHUM MUNITUM	SWORDFERN
POTENTILLA FRUTICOSA	SHRUBBY CINQUEFOIL
RHODODENDRON 'GOMER WATERER'	PJM', 'PURPLE SPLENDOR', 'UNIQUE,' etc.
RIBES SANGUINEUM 'ELK RIVER RED'	RED FLOWERING CURRANT
ROSA RUGOSA (many varieties)	RAMANAS ROSE
SKIMMIA JAPONICA	JAPANESE SKIMMIA
SKIMMIA REEVESIANA	REEVES SKIMMIA
SYMPHORICARPUS ALBUS	SNOWBERRY

TAXUS BACCATA 'REPANDENS'	SPREADING ENGLISH YEWE
VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY
VIBURNUM DAVIDII	DAVID VIBURNUM
VIBURNUM PLICATUM TOMENTOSUM	DOUBLE FILE VIBURNUM
GROUND COVERS	
AJUGA REPTANS 'BURGANDY GLOW', GAIETY, etc.	CARPET BUGLE
ARCTOSTAPHYLOS UVA URSI	KINNIKINNIK
ARCTOSTAPHYLOS UVA URSI 'VANCOUVER JADE'	KINNIKINNIK VANCOUVER JADE
COTONEASTER DAMMERI 'LOWFAST'	BEARBERRY COTONEASTER
EPIMEDIUM 'ROSE QUEEN,' 'NIVIUM,' etc.	BISHOP'S HAT
EUONYMUS FORTUNEI 'COLORATA'	PURPLE-LEAF WINTER CREEPER
FRAGARIA CHILOENSIS 'LIPSTICK,' 'PINK PANDA'	BEACH STRAWBERRY
GAULTHERIA SHALLON	SALAL
HYPERICUM CALY CINUM	ST. JOHNSWORT
JUNIPERUS HORIZONTALIS 'BLUE CHIP'	BLUE CHIP JUNIPER
JUNIPERUS HORIZONTALIS 'PRINCE OF WALES'	PRINCE OF WALES JUNIPER
JUNIPERUS HORIZONTALIS 'WILTONII'	WILTON JUNIPER
JUNIPERUS PROCUMBENS 'NANA'	COMPACT GARDEN JUNIPER
JUNIPERUS SABINA "BROADMOOR"	BROADMOOR JUNIPER
LIRIOPE SPICATA	CREEPING LILYTURF
LITHODORA DIFFUSA 'GRACE WARD,' 'HEAVENLY BLUE'	LITHODORA
MAHONIA NERVOSA	LONGLEAF MAHONIA
OPHIPOGON JAPONICUS 'NANA'	DWARF MONDO GRASS
PACHYSANDRA TERMINALIS 'SILVER EDGE,' etc.	JAPANESE SPURGE
RUBUS CALYCINOIDES 'EMERALD CARPET'	CREEPING RUBUS
THYMUS PSEUDOLANUGINOSUS	WOOLY THYME
THYMUS SERPHYLLUM	WILD THYME
VINCA MINOR 'BOWLESII,' etc.	DWARF PERIWINKLE

The use of native plants, other than those listed above that are hardy, drought-tolerant, low maintenance and meet force protection criteria, is encouraged.

APPENDIX A

REFERENCES

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Code of Federal Regulations
Government Printing Office
Washington, DC 20402

49 CFR 192 Transportation of Natural and
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Safety Standards

40 CFR 280 Owners and Operators of
Underground Storage Tanks

49 CFR 195 Transportation of Hazardous
Liquids by Pipeline

10 CFR 430 Energy Conservation
Program for Consumer Products

Department of Defense

UFC 1-200-01 Design: General Building
Requirements

UFC 3-600-01 Fire Protection Engineering
for Facilities

UFC 4-010-01 DoD Minimum
Antiterrorism Standards For Buildings

Department of the Navy
Standardization Documents Order Desk
700 Robbins Avenue, Bldg. 4D
Philadelphia, PA 19111-5094

UFC-3-6001-01 Design: Fire Protection
Engineering for Facilities

U.S. Government Printing Office

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

U.S. Government Printing Office (GPO) Style
Manual

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Air Movement and Control Association
30 W. University Drive
Arlington Heights, IL 60004-1893

AMCA 210 (1985) Laboratory Methods of
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Air Conditioning and Refrigeration Institute
4301 North Fairfax Drive
Arlington, VA 22203

ARI 310/380 (1993) Packaged Terminal
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ARI 440 (1998) Room Fan-Coil and Unit
Ventilator

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Induction Units

American Architectural Manufacturers
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1827 Walden Office Square, Suite 104
Schaumburg, IL 60173-4268

ARI 880 (1998) Air Terminals
AAMA 101 Voluntary Specifications for
Aluminum, Vinyl and Wood Windows and
Glass Doors

AAMA 605 Voluntary Specification
Performance Requirements and Test
Procedures for High Performance Organic
Coatings on Aluminum Extrusions and Panels

AAMA 607.1 Voluntary Guide
Specifications and Inspection Methods for
Clear Anodic Finishes for Architectural
Aluminum

AAMA 1503 Voluntary Test Method for
Thermal Transmittance and Condensation
Resistance of Windows, Doors, and Glazed
Wall Sections

American Bearing Manufacturers Association
1200 19th Street, NW
Washington, DC 20036-4303

AFBMA Std 9 (1990) Load Ratings and
Fatigue Life for Ball Bearings

AFBMA Std 11 (1990) Load Ratings and
Fatigue Life for Roller Bearings

American Boiler Manufacturers
Association (ABMA)
950 N. Glebe Rd, Suite 160
Arlington, VA 22203-1824

ABMA ISEI Industry Standards and
Engineering Information

American National Standards Institute 11 West
42 Street
New York, NY 10036

ANSI Z21.10.1 (1993; Z21.10.1a;
Z21.10.1b; Z21.10.1c) Gas Water Heaters Vol.
I, Storage Water Heaters with Input Ratings of
75,000 Btu Per Hour or Less

ANSI Z124.3 (1995) American National
Standard for Plastic Lavatories.

ANSI Z124.6 (1997) Plastic Sinks

ANSI Z21.45 (1995) Flexible Connectors
of Other Than All-Metal Construction for Gas
Appliances

ANSI C2 (1997) National Electrical Safety
Code

ANSI 70 (1996) National Electrical Code

ANSI/TIA/EIA-569-A (1998) Commercial
Building Standard for Telecommunications
Pathways and Spaces

American Society for Testing and Materials
100 Bar Harbor Drive
West Conshohocken, PA 19428-2959

ASTM E84 (2000) Surface Burning
Characteristics of Building Materials

ASTM D 2846/D 2846M (1999)
Chlorinated Poly(Vinyl Chloride) (CPVC)
Plastic Hot- and Cold-Water Distribution
Systems

ASTM D 2513 (1999; Rev. A)
Thermoplastic Gas Pressure Pipe, Tubing,
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ASTM D 2683 (1998) Socket-Type
Polyethylene Fittings for Outside Diameter-
Controlled Polyethylene Pipe and Tubing

ASTM A 53 (1999) Pipe, Steel, Black and
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Seamless

ASTM A 106 (1999) Seamless Carbon
Steel Pipe for High-Temperature Service

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Water Tube

ASTM D 5686 (1995) "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Pipe Fittings, Adhesive Bonded Joint Type Epoxy Resin, for Condensate Return Lines

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ASTM C 591 (1994) Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation

ASTM C 518 (1998) Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

ASTM A 134 (1996) Pipe, Steel, Electric-Fusion (Arc)-Welded (Sizes NPS 16 and Over)

ASTM A 135 (1997c) Electric-Resistance-Welded Steel Pipe

ASTM A 139 (1996e1) Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and over)

ASTM A 36/A 36M (2000) Carbon Structural Steel

ASTM D 2310 (1997) Machine-Made "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe

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1791 Tully Circle. NE
Atlanta, GA 30329-2305

ASHRAE 90.1 (1989; 90.1b; 90.1c; 90.1d;
90.1e; 90.1g; 90.1i 90.11-1995; 90.1m-1995;
90.1n-1997) Energy Efficient Design of New
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ASHRAE Hdbk-IP (1997) Handbook,
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American Society of Mechanical Engineers
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Three Park Place
New York, NY 10016-5990

ASME B31.8 (1995) Gas Transmission
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ASME B16.11 (1996) Forged Fittings,
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Guidelines for the Care of Power Boilers

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Architectural Woodwork Institute
1952 Isaac Newton Square W.
Reston, VA 20190

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Associated Air Balance Council
1518 K Street NW, Suite 708
Washington, DC 20005

AABC MN-1 (1989) National Standards
for Testing and Balancing Heating, Ventilating,
and Air Conditioning Systems

Builders Hardware Manufacturers Association
355 Lexington Ave, Suite 1700
New York, NY 10017-6603
Council of American Building Officials
5203 Leesburg Pike, Suite 708
Falls Church, VA 22041

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Closers...

CABO A117.1 (1992; Errata Jun 1993)
Accessible and Usable Buildings and Facilities

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2500 Wilson Blvd
Arlington, VA 22201-3834

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EIA/TIA 569-A (2001, amendment 5)
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Illuminating Engineering Society of North
America
120 Wall Street, 17th Floor
New York, NY 10005-4001

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Lighting

IES LHBK (1993) Lighting Handbook,
Reference and Application
Standard for Use of the International System
of Units (SI): the Modern Metric System

Institute of Electrical and Electronics
Engineers Inc. (IEEE)
445 Hoes Lane, P.O. Box 1331
Piscataway, NJ 08855-1331

International Approval Services (IAS)
8501 E. Pleasant Valley Rd
Cleveland, OH 44131

IAS Directory (1999) IAS Directory of AGA
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International Association of Plumbing and
Mechanical Officials
20001 Walnut Drive South
Walnut, CA 91789-2825

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(Water Closets) Seats

International Code Council, Inc.
5203 Leesburg Pike, Suite 708
Falls Church, VA 22041-3401

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International Conference of Building Officials
5360 Workman Mill Road
Whittier, CA 90601-2298

ICBO (1997) Uniform Building Code

National Association of Corrosion Engineers
International
1440 South Creek Drive
Houston, TX 77084-4906

NACE RP0169 (1996) Control of
External Corrosion on Underground or
Submerged Metallic Piping Systems

NACE RP0185 (1996) Extruded,
Polyolefin Resin Coating Systems with Soft
Adhesives for Underground or Submerged
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1300 N 17th Street, Suite 1847
Rosslyn, VA 22209

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NEMA LD3 High Pressure Decorative
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National Environmental Balancing Bureau
8575 Grovemont Circle
Gaithersburg, MD 20877-4121

National Fire Protection Association
One Batterymarch Park
Quincy, MA 02269-9101

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Plumbing and Drainage Institute
45 Bristol Drive, Suite 101
South Easton, MA 02375

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National Association
PO Box 221230
Chantilly, VA 20153-1230

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SMACNA Arch. Manual (1993; Errata;
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ANSI A250.8/SDI 100 Standard Steel
Doors and Frames

Steel Door Institute (SDI)
30200 Detroit Road
Cleveland, OH 44145-1967

Steel Tank Institute (STI)
570 Oakwood Rd
Lake Zurich, IL 60047

STI P3 Underground Steel Storage Tank
Protection

Underwriters Laboratories
333 Pfingsten Road
Northbrook, IL 60062-2096

UL 430 (1994; Rev thru Nov 1996) Waste
Disposers

UL 567 (1996; Rev thru Oct 1997) Pipe
Connectors for Petroleum Products and LP-
Gas

UL 1746 (1993; Rev thru Sep 1998)
External Corrosion Protection Systems for
Steel Underground Storage Tanks

UL 1995 (1995; Rev thru Aug 1999)
Heating and Cooling Equipment

UL 507 (1999) Electric Fans

UL 608 Modular Vault Panels

UL 746C (1995; Rev thru Jul 1999)
Polymeric Materials - Use in Electric
Equipment Evaluations

UL 705 (1994; Rev thru Feb 1999) Power
Ventilators

UL 1316 (1994; Rev Apr 1996) Glass-
Fiber-Reinforced Plastic Underground Storage
Tanks for Petroleum Products, Alcohols, and
Alcohol-Gasoline Mixtures

SECTION 00890

OUTLINE SPECIFICATIONS

1.00 GENERAL.

a. Purpose

These outline specifications cover the range of products/work to be included in the project. The purposes for this listing are:

- to indicate the areas of work in this project;
- to broadly indicate the work within each section, and
- to indicate minimum acceptable requirements and to further detail those minimum requirements.

These outline specifications do not attempt to address product approval, shop drawings, actual installation or other items covered in the referenced specifications.

b. Fundamental Requirements

(1) Specifications for this project shall be developed by editing the appropriate Unified Facilities Guide Specifications (UFGS) section, unless a section is provided in this RFP or a required section is not available within the UFGS.

(2) All editing of guide specifications shall be performed as directed in paragraph 3.00 EDITING PROCEDURES.

(3) This RFP also includes specification sections that are fully developed. The Contractor shall incorporate these complete specifications into the design without any further editing.

(4) This project shall be 100% asbestos free. No asbestos or asbestos containing materials, in any amounts shall be allowed in the construction of this project.

(5) There shall be zero lead content in any paints or coatings used in the construction of this project.

(6) No PCB's shall be used in light ballasts in any amounts in the construction of this project.

(7) The exterior wall sections, including the framing, waterproofing, and exterior and interior finishing, shall satisfy the design requirements for fire protection, heat loss, seismic and wind loads, environmental sustainability, security, force protection, and durability.

(8) Manufacturer and/or trade names provided in these outline specifications are used to indicate the properties and quality of the product. Indication of manufacturer or trade names does not restrict the Contractor's ability to select other manufacturers that provide an approved and equal product.

(9) In some instances, products, systems and/or components are listed for the purpose of conforming to or being compatible with existing products, systems and/or components at Fort

Lewis. These items shall be provided as indicated in paragraph 4.00 OUTLINE SPECIFICATIONS, or the contractor may demonstrate that a product, system or component is fully compatible with existing by meeting the following conditions:

- (a) Submittals as required were submitted and approved in accordance with specification Section 01330 - SUBMITTAL PROCEDURES.
- (b) The product, system or component has been successfully used before in a similar application.
- (c) The Contractor provides an owner/user point of contact (POC) for previous installations to the Government to verify customer satisfaction.
- (d) The system is tested operationally with the Installation System with which compatibility is required and all functions required are demonstrated to be operational

2.00 SPECIFICATIONS.

a. The Guide Specifications listed below are Unified Facilities Guide Specifications (UFGS) unless otherwise noted, and are to be used for all military construction. The design build contractor shall prepare all specifications by editing the appropriate UFGS. Edits shall be limited to additions and deletions required to match the products, systems or construction methodologies used. All bracketed ([]) information shall be edited. Language standard to the UFGS that is not design specific shall not be edited.

b. The Offeror/Contractor is to be aware that these specifications represent the latest versions available at the time of issue of this RFP and shall be used in preparing specifications for this project. Specifications are available in electronic format (SpecsIntact) from the Seattle District Corps of Engineers Internet homepage: (<http://www.nws.usace.army.mil>, under the tab "Construction Specifications).

c. COE Seattle District prepared guide specifications (designated NPS) are located at the Seattle District Corps of Engineers Internet web site (<http://www.nws.usace.army.mil/specs/specmain.htm>). Use of these specifications shall be limited to obtaining specific information for editing the UFGS.

d. Fort Lewis Installation specifications have been included in the following outline specifications. Requirements described in these outline sections shall be incorporated into the UFGS edits for project specifications.

e. For work not covered by an available UFGS section, the Offeror/Contractor may use other recognized industry sources of specifications unless noted otherwise. However, all sections so derived shall be written to match the three part (CSI) structure, adhere to the format of the UFGS, and be provided using the SpecsIntact software.

3.00 EDITING PROCEDURES

a. Use of the UFGS establishes an acceptable level of quality in materials, and workmanship. In preparation of design submittal specifications the referenced sections shall be edited to reflect project specific requirements. The Contractor shall be required to use unedited Unified Facilities Guide Specifications (UFGS) and designated unedited Corps of Engineers Guide Specifications (CEGS) sections for developing project specifications. UFGS are listed with

an A, an N, or no letter designation after the specification number. UFGS that cover similar subjects and those that have been identified for later consolidation into a single specification section are identified with an alpha designation ("A" for USACE, "N" for NAVFAC, and "F" for AFCEA) following the section number. Users of UFGS should first consider a UFGS without an alpha designation if one is available and next a UFGS with an alpha designation of their agency, and lastly a UFGS with an alpha designation of another agency. Specification paragraphs and subparagraphs shall not be rewritten to lessen the quality of the original technical specification sections. The technical guide specifications describe the type and quality of material and installation normally acceptable for Corps of Engineers Construction, and often represent specific agreement between the Corps and the applicable industry. The provision of the technical guide specification should not be changed without justification. Justifications and identification for additional materials shall be identified in the design analysis under the appropriate design discipline. Designer notes shall not appear in any design submittals. Any proposed deletions shall be clearly marked in all design specification submittals except for the 100% submittal. Only bracketed choices and inapplicable items shall be marked for deletion. These items shall be removed in corrected 100 percent specifications submittal. The Contractor shall complete the editing of all options in these specifications. Where designer notes are provided, the Contractor shall edit the choice in accordance with the recommendations and guidance of the Notes, except where specific guidance has been provided with this RFP (i.e. submittal paragraph).

b. When editing the UFGS specifications, the Contractor shall follow these rules:

(1) **QUALITY:** Specification paragraphs and subparagraphs shall not be rewritten to lessen the quality of the original technical specification sections. The technical guide specifications describe the type and quality of material and installation normally acceptable for Corps of Engineers Construction, and often represent specific agreement between the Corps and the applicable industry. The provisions of the technical guide specification shall not be changed without justification and written acceptance by the COR. Justifications and identification for additional materials shall be identified in the design analysis under the appropriate design discipline.

(2) **DESIGNER NOTES:** Notes to designers contained in the UFGS shall not appear in any design submittals. Where designer notes are provided, the Contractor shall edit the choice in accordance with the recommendations and guidance of the notes, except where specific guidance has been provided with this RFP.

(3) **BRACKETED INFORMATION:** Contractor shall select from options or complete information inserts at bracketed text. Unselected bracketed choices and inapplicable items shall be marked for deletion (strike through) in preliminary (65% and 95%) submittals. These items shall be removed in corrected 100% specification submittal. The Contractor shall complete the editing of all options in the 100% submittal.

(4) **ADDITIONS:** If the UFGS specification does not cover a feature that is in the project, new sentences and/or paragraphs shall be inserted in the proper locations to adequately cover the feature of work. Additions shall not lessen the quality of materials indicated by the specifications. If a new material is added, it shall be properly referenced in "Applicable Publications," "MATERIALS," "SUBMITTAL," "TESTS," and "INSTALLATION" paragraphs, as applicable.

(5) **DELETIONS:** Text material not applicable to the project shall be deleted as necessary. After deletion has been made to all inapplicable paragraphs, subparagraphs, choices, and

schedules from the body of the specifications (including but not limited to the correction of lists in "Submittals," "Tests," and "Installation" paragraphs), delete all non-applicable references listed in the preceding "APPLICABLE PUBLICATIONS" and "MATERIALS" paragraphs. Deletions shall not lessen the quality of materials indicated by the specifications.

(6) REFERENCES TO SPECIFICATION SECTIONS: The Contractor shall be responsible for coordinating references, along with the technical requirements, to specific specification sections (number and title) within the project specifications. Section references (title and number) shall be revised to reflect the titles and numbers of specification sections used.

(7) DEVELOPING ADDITIONAL PROJECT SPECIFICATIONS. If the need should arise for developing project specification sections for materials/items not covered by the UFGS, the Contractor shall develop specifications utilizing commercial Construction Specifications Institute (CSI), 16 Division, 3 Part Section Format. These specifications shall conform to the applicable criteria requirements indicated in the RFP. Adjust section numbers which conflict with the specifications used in the Project Specifications. Each of these developed specification sections shall be in the same format as the UFGS (including the submittal paragraph). Commercially available guide specifications such as "SpecText" published by The Construction Specifications Institute and "MasterSpec" published by The American Institute of Architects may be used. References to the "Architect/Engineer" and the "Owner" shall be changed to refer to the "Government" or "Contracting Officer," as appropriate. The specifications shall clearly identify, where appropriate, the specific products chosen to meet the requirements of the specifications. The Contractor shall be responsible for coordinating references, along with the technical requirements, to specific specification sections (number and title) within the project specifications. Section references (title and number) shall be revised to reflect the titles and numbers of specification sections used.

4.00 SUBMITTALS

a. Product literature detailing assemblies and materials to be utilized in the project may be submitted with specifications during the design phase. This advanced coordination may reduce review/evaluation time associated with the submittal process during construction. However, shop drawings, product and equipment data included and accepted with the specification acceptance does not constitute government approval of equipment, material or layout. This responsibility to meet the requirements of the RFP remains with the Contractor.

b. Refer to Section 00810 of this RFP for information related to submittal requirements. Initial submittals (65% level) of specifications shall contain clear notation of text that has been added or deleted. Text proposed for deletion shall remain until the submittal is accepted. Subsequent interim (95%) submittals shall accept previous edits and highlight changes made since the 65% submittal. All deleted/accepted text shall be removed in the 100% specification submittal. The Contractor shall complete the editing of all options in the 100% submittal.

5.00 FULL TEXT SPECIFICATIONS

a. Seattle District Corps of Engineers standard Division 1 and select prescriptive specifications are included following this section in full text. These specifications shall be applied to this contract as written and as with regards to materials, equipment, systems, workmanship, and other technical matters. For general, administrative and procedural issues the contract provisions specified elsewhere in the RFP and contract shall govern.

b. DIVISION 1: General Requirements

01001 Supplementary Requirements
01005 Site Specific Supplementary Requirements
01025 Payment
01035 Modification Procedures
01312 Quality Control System
01320 Project Schedule
01330 Submittal Procedures
01410 Environmental Protection
01415 Metric Measurements
01451 Contractor Quality Control
01452 Special Inspection for Seismic-Resisting Systems
(Provide special inspection in accordance with UFGS 01452A and the IBC.)
01501 Construction Facilities and Temporary Controls
01572 Construction and Demolition Waste Management
01670 Recycled / Recovered Materials
01701 Operations and Maintenance Manuals
01702 As Built Records and Drawings
01703 Warranty of Construction
01704 FORM 1354 CHECKLIST
01705 Equipment-in-Place List

6.00 OUTLINE SPECIFICATIONS

a. Incorporate all specific guidance and requirements listed below into the relevant specification section or sections. The sections listed below are not intended as an all inclusive compilation of the sections that will be required for this project. It is the responsibility of the contractor to ensure that specification sections are edited or developed as necessary.

b. All sections identified below are UFGS unless otherwise noted. In some instances, the UFGS list carries two versions of a section with a letter suffix of "a" for army or "n" for navy. Where this duplication occurs, the army version of all such sections shall be used.

c. Divisions 2-16: TECHNICAL

DIVISION 2: SITEWORK

02220 Demolition

Provide equipment and systems in accordance with UFGS 02220a and as follows:

All demolition work shall conform to EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual. Work includes demolition, removal, and salvage of identified items and materials. Salvage shall be pursued to the maximum extent possible and shall be disposed of as directed. Burning and explosives will not be permitted. Provide equipment and labor necessary to safely demolish and remove identified utility services and flexible pavement.

Protection of Trees. Trees within the project site limits of work and which are indicated to be retained, shall be protected by a 1.8 M tall portable chain-link fence. The fence shall be securely erected at the dripline of individual trees or follow the outer perimeter of branches for clumps of trees. The dripline is defined as the circle drawn on the soil around a tree directly under its outermost branch tips. If the fence location is in conflict with demolition or construction operations, the Contractor shall bring the conflict to the attention of the CO for resolution. If it is not possible to protect the area within the dripline of trees, the Contractor shall hire a tree specialist (International Society of Arboriculture (ISA) Certified Arborist, urban forester or horticulturist) to evaluate the condition of the tree and the potential impact to it. The specialist, shall, in consultation with CO, make the final decision on whether the tree shall be removed or retained or if additional protective measures be implemented. Any tree designated to remain that is damaged during the work under this contract shall be replaced in kind in accordance with Section 01410 ENVIRONMENTAL PROTECTION.

02230 Clearing and Grubbing

Provide equipment and systems in accordance with UFGS 02230a and as follows:

Site Preparation recommendations shall be as provided in the furnished Geotechnical Report (see Section 00860 Attachment 8) and/or the Contractor furnished Geotechnical Report as applicable. The Contractor shall dispose of all organic material, resulting from clearing and grubbing operations, at a legal location outside Government-controlled land. The Contractor shall obtain approval of haul route and disposal site.

Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed in areas indicated to be grubbed and in areas indicated as construction areas under this contract, such as areas for buildings, and areas to be paved. Existing trees to be preserved shall be crown-pruned to remove all dead, broken, or crossing branches within the crown of the tree. Pruning shall be accomplished by trained and experienced personnel in accordance with ANSI A300. Trees to remain shall also have all flagging, paint, hardware, or other man-made products removed prior to new exterior plant material installation. Limbs and branches to be pruned shall be neatly cut just outside the branch collar parallel with the trunk or adjacent larger branch; do not leave stubs. No tree wound dressing or paint shall be used. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations in accordance with Section 01410 ENVIRONMENTAL PROTECTION and 02220 DEMOLITION.

02300 Earthwork

Provide equipment and systems in accordance with UFGS 02300a and as follows:

Perform detailed site civil design required to establish elevations necessary for site preparation, excavation, borrow, filling, backfilling, compacting, and finished grading to construct the pavements and other site work. All fill material shall be free of contamination. The Contractor shall submit a proof of verification of the source of fill material or results of analytical testing. All work shall be in compliance with the furnished Geotechnical Report (see Section 00860 Attachment 8) and/or the Contractor furnished Geotechnical Report as applicable. Topsoil shall be obtained from sources outside the limits of Government-controlled land and shall be as specified in SECTION: 02921, SEEDING.

02315 Excavation, Filling, and Backfilling for Buildings

Provide equipment and systems in accordance with UFGS 02315a and as follows:

Provide excavation, filling, backfilling, compacting, and finished grading necessary to construct the finish grades indicated for structures. All work shall be in compliance with the furnished Geotechnical Report (see Section 00860 Attachment 8) and/or the Contractor furnished Geotechnical Report as applicable. Provisions for dewatering the building excavation, if required, shall be included.

02316 Excavation, Trenching and Backfilling for Utilities Systems

Provide equipment and systems in accordance with UFGS 02316a and as follows:

Perform excavating, preparation of pipe-laying surface, pipe bedding, backfilling and compaction. Requirements for underground mechanical and electrical work. Installation of marking tape for identification and detectability. All work shall be in compliance with the furnished Geotechnical Report (see Section 00860 Attachment 8) and/or the Contractor furnished Geotechnical Report as applicable. Open trench cuts crossing newly paved roads are permitted only to connect to an existing utility situated under the paved road. Any other crossings of newly paved roads shall be by jacking. Provisions for dewatering the utility excavation, if required, shall be included.

02510 Water Distribution System

Provide equipment and systems in accordance with UFGS 02510a and as follows:

Provide materials for and installation of water system to provide for domestic use and required fire protection to meet NFPA 24 and NFPA 13. NFPA 13 requires clearances around the main riser to prevent damage of piping subjected to earthquakes. Provide water service lines of ductile-iron pipe or polyvinyl chloride (PVC) plastic water main pipe. Provide water service appurtenances as required.

02531 Sanitary Sewers

Provide equipment and systems in accordance with UFGS 02531a and as follows:

Provide sanitary sewer system including pipelines, manholes, and clean outs connect to the existing sanitary sewer system. Provide mains or laterals of cast iron, or polyvinyl chloride (PVC) plastic pipe. Manhole inverts shall be channeled with a 2 percent cross slope. Provide surface clean outs surrounded by 600 mm square cement concrete pad in landscape areas and steel collars in vehicular pavement areas. All existing laterals and clay lines must be replaced.

Existing lines may be abandoned in place. All connections to the existing system must be made in manholes or have a manhole installed. Manholes shall be precast concrete.

02556 Gas Distribution System

Provide equipment and systems in accordance with UFGS 02556a and as follows:

Gas piping system shall be from the point of delivery, defined as the outlet of the meter set assembly as provided by Puget Sound Energy Services. The contractor shall contract Puget Sound Energy Services to install and own meter set assemblies and underground piping to the buildings.

The Contractor shall provide polyethylene propane/air gas piping (separate from the natural gas piping to be installed by PSE) from the point of connection to each building. Piping shall be sized for a supply pressure of 275 kPa (40 psig). This connection shall be tied into the building piping system, downstream of the gas utility meter and shall be provided with a lockable manual valve.

02630 Storm-Drainage System

Provide equipment and systems in accordance with UFGS 02630a, with Stormwater Management Manual for Western Washington, and as follows:

Provide materials for and the installation of required site storm drainage system and connection to existing storm drainage system. The system shall include storm drain lines, branches, catch basins and manholes. Storm drain lines and branches shall be polyvinyl chloride (PVC) plastic, ductile-iron, or concrete pipe, as required by Ft Lewis design standards. Subsurface drainage, foundation drainage and/or under drainage system shall be perforated polyvinyl chloride (PVC) plastic piping. All underground perforated drainage systems shall include one layer of filter fabric wrapped around the pipe with a 150 mm overlap. Filter fabric shall be a pervious material manufactured into a non-raveling fabric with uniform thickness and strength meeting the requirements of the UFGS specifications. Catch basins and manholes shall be constructed according to Washington State standards and UFGS specifications. Storm drainage lines shall not be corrugated and must be smooth on the inside surface. All joints shall be watertight.

02722 Aggregate and/or Graded-Crushed-Aggregate Base Course

Provide equipment and systems in accordance with UFGS 02722a and as follows:

Provide materials and labor necessary for construction of base course for flexible pavement. Perform placement, compaction, and finished grading required to obtain the finished grade elevations for top of base course. Crushed aggregate materials shall be in compliance with the furnished Geotechnical Report (see Section 00860 Attachment 8) and/or the Contractor furnished Geotechnical Report as applicable. All work shall conform to the furnished Geotechnical Report (see Section 00860 Attachment 8) and/or the Contractor furnished Geotechnical as applicable.

02741 Hot – Mix Asphalt (HMA) for Roads.

Provide equipment and systems in accordance with UFGS 02741a and as follows:

Provide a binder and wearing course of plant mixed asphalt concrete (AC) placed on a prepared base in accordance with the Geotechnical Report. AC shall conform to the requirements stated in the Geotechnical Report. Provide tack coat for connection to existing flexible pavement and other applicable areas.

02763 Pavement Markings

Provide equipment and systems in accordance with UFGS 02763a and as follows:

Furnish and install pavement markings along the roadway surface as required for parking delineation. Parking delineation, arrows, stop bars, crosswalks and barrier strips shall be painted. Blue 100 mm x 100-mm thermoplastic street markers shall be provided for ease in finding fire hydrants, offset to side of hydrant.

02770 Concrete Sidewalks and Curbs and Gutters

Provide equipment and systems in accordance with UFGS 02770a and as follows:

Provide materials and labor necessary for construction of cement concrete sidewalks, and vertical curb and gutter. Provide aggregate base course for rigid pavement. Finish surface for concrete sidewalks shall be a broomed finish to achieve a non-slip surface. Sidewalks shall be a minimum of 100 mm thick. Vertical curb shall be according to design detail. Provide expansion joints between curbs and sidewalks and between buildings or walls and sidewalks. Provide expansion joints in all concrete sidewalks, curbs, and gutters at 9 meters maximum spacing and extended joints continuous through sidewalks, curbs, and gutters. Provide steel dowel reinforcing connecting sidewalk slabs at all expansion joints. Provide scored control joints at 2 meters maximum spacing.

Concrete Pattern, Color and Texture: Suggested sidewalk concrete patterning at Echo Block is for an imprinted random pattern of variegated-size, slate-textured stone block and natural mortar joints. The suggested color is integrally-colored 'tan' using an approved concrete dye. Pigmentation shall conform to ASTM C 979. If patterned concrete and pavers are used, it is suggested that the color of imprinted concrete sidewalks match the color of the concrete paving blocks.

Concrete Paving Blocks: Suggested concrete paving blocks at Echo Block are 450mmx450mm and/or 300mm x 300mm, colored "tan" with a shot-blasted finish and chamfer on all top edges. Pigmentation shall conform to ASTM C 979.

02811 Underground Sprinkler System

General: Final design shall include the size, flow, and static pressure of the new water service, and pressure loss calculations for the largest and furthest zones. Design shall be consistent with existing irrigation previously installed at Echo Block and Plate Number L103.

The system shall be a commercial-grade, underground, fully automatic and consistent with all local codes, including backflow prevention, and standard practices. All sprinkler heads shall be

pop-up type, (bubblers, spray, and gear rotors). Heads installed above ground on risers will not be approved. Drip irrigation is not allowed.

Materials: New irrigation system components shall include, but are not necessarily limited to: irrigation meters, pressure regulators (if required), backflow prevention devices, strainers, gate valves, brass master valves, plastic remote control valves, manual drain valves, quick couplers, concrete meter boxes, plastic valve boxes, irrigation piping (mainline and laterals), sleeves, miscellaneous fittings (see Plate Number L103 for use of sch 80 pvc and brass fittings, other fittings shall be sch 40 pvc), sprinkler heads, plastic nozzles, "triple swing" swing joints, , automatic controllers, rain sensors/ bypass switch, conduit, waterproof wire spice (wire nut type waterproof splice alone is not allowed), #14 U.F. wiring and any additional items needed to provide a 100% complete and operational system. Materials shall conform to applicable standards of the American Society for Testing Material and Underwriter's Laboratory.

All irrigation piping (mainline and laterals) and sleeving shall be schedule 40 PVC. CI 200 pvc pipe is not allowed. Sprinklers shall have plastic bodies and a pop-up stem of 100 mm in lawn areas, 150 mm in low groundcover areas, and 300 mm in shrub and groundcover areas. Remote control valves shall be commercial grade plastic and shall be located below grade in standard valve boxes. Backflow devices shall conform to local plumbing codes. Cold water meters shall be positive displacement type conforming to AWWA C708. Meter register may be round or straight reading type with register units as specified by the Contracting Officer. Meter shall have an electronic register capable of pulse output and all necessary wiring and accessories. The remote readout register wiring shall be routed to a location on the nearest building, as indicated by the Contracting Officer.

Installation: Irrigation work shall include excavation, trenching and backfilling, installation of all components, testing and inspection, clean up and maintenance of each system until final acceptance of the project. Sleeving under traffic loads shall have a minimum cover of 900 mm, sleeving under sidewalks, mainline, and control wires shall have a cover of 600 mm, and laterals shall have a cover of 300 mm. Each controller shall provide at least two unused stations with a minimum of 1 spare control wire per leg of mainline or a total minimum of 4 spare wires, which ever is greater. Install control wires in conduit when wires occur without irrigation piping. Control wires shall be looped as noted on Plate Number L103. Provide an adequate means for winter drainage of the systems. Bedding material for irrigation pipe shall be clean sand conforming to the following:

Sand:

Sieve Size	Percent Passing
13mm square	90-100
6mm square	65-100
U.S. No. 10	40-100
U.S. No. 50	3-30
U.S. No. 100	0-4
U.S. No. 200	0-3

All percentages by weight.

All irrigation pipe and sleeving shall receive 100 mm of import sand on all sides of each pipe. Maintain a minimum of 50 mm horizontal spacing between pipes in common trench. Vertical

stacking of lateral pipes is not allowed. A trace wire shall be installed in all trenches containing pvc mainline and/or laterals. Remaining backfill in trenches shall be free of rock or cobbles over 25mm in diameter. Remaining rock and debris will be hauled off site to an approved location.

Trenching within the drip line of existing trees to be preserved shall be done by hand. All irrigation mainlines and laterals passing under roadways or paving shall be placed in sleeves at least twice the diameter of the pipe(s) passing through it. Existing roadways shall not be cut to accommodate new irrigation piping. Paving which is damaged shall be restored to match existing when disturbed due to trenching or irrigation system installation.

Provide head-to-head coverage of all landscape areas and separate zones for shrub/groundcover and lawn areas. Include one quick coupler at each point of connection for winterization and one quick coupler at each end of mainline leg.

02870 Site Furniture

Echo Block:

Finish colors for site furniture shall be well coordinated with each other and with buildings to create a cohesive visual character. Suggested colors include black, bronze, and brown. Site furniture shall be permanently installed, low maintenance, with durable materials and finishes and shall be in compliance with force protection criteria.

COF Guidon Pedestal: Cast in place concrete pedestal shall be as shown on detail drawings. Concrete pad shall be formed and placed with reinforcement prepared for guidon as shown Plate C108. Finish of pedestal shall be smooth, light sandblast.

Battalion Headquarters Facility Sign: Battalion sign shall be 1.5 M high x 1.85 M long constructed of a concrete and brick base, mortared brick posts and tube steel mounting frame. Brick color shall match brick used for Battalion Headquarters Facility. Frame color shall be semi-gloss black. Construction and assembly shall be as shown on details in Attachment 7, Plate A0.1.

Company Operations Facility Sign: Individual Company sign structure shall be 1.06 M high x 1.6 M long consisting of two 200 mm round reinforced concrete posts, and two horizontal 38 mm x 75 mm x 11 Ga. Tube steel mounting frame. Frame color shall be semi-gloss black. Construction and assembly shall be as shown details in Attachment 7, Plate A0.1. Concrete finish shall be smooth, light sandblast. Sign mounts shall be 300mm x 1.1 M x 3.1 mm steel plate. Reinforcement shall be 4 – 10M (#3) rebar wound with #13 gauge spiral steel wire.

Echo and Alpha Block:

Trash Receptacles: Trash receptacles shall be a 121 L-size with a dome lid for all-weather protection. Concrete and pre-cast concrete materials shall not be used.

Benches: Benches shall be 1.8 M long and provided with and without backs as appropriate for different locations and functions. Concrete and pre-cast concrete materials shall not be used.

Bike Racks: Bike rack shall be constructed of heavy-duty quality steel.

Alpha Block:

Picnic Tables: Picnic tables shall be pedestal-style. Concrete and pre-cast concrete materials shall not be used.

Outdoor Barbecue Grills: Grill shall have an approximately 193,500 square millimeters grill area and be a heavy-duty rotating grill, sides and back of 10 gauge galvanized steel, bottom of 7 gauge steel with ash lip. Grill shall be pedestal style, universally accessible, and adjustable to three to four cooking heights. Grill package shall include a 10 gauge hot-rolled steel hot plate, approximately 150 mm x 350 mm, which attaches to standard grate and utility shelf. Finish shall be non-toxic, rust-resistant, baked-on, black dry powder. Support post shall be galvanized or baked-on, black dry powder-coated.

Picnic Shelters/Bike Rack Shelters: Shelters shall be appropriately sized to provide overhead protection to picnic tables and bike racks from weather. No wood or fiberglass shingles shall be used for roofing material.

Parcourse (exercise) stations: Parcourse shall have a minimum of 15 fitness events for the following exercises: Achilles, Sit and Reach, Leg Stretch, Hamstring Stretch, Thigh Stretch, Trunk Stretch, Vault Bar, Sit-up, Push-Up, Chin-Up, Knee Lift, Body Curl, Log Hop, Bench Dips, Bench Curl. Optional events may include Half-Knee Bend, Bench Leg Raise, or Bench Dips.

Parcourse stations shall meet industry safety standards. Station surface material shall be a mix of random-sized, engineered wood fibers of 250mm compacted depth. Fibar system 310 or approved equal. Standard wood mulch is not acceptable. Supplier shall provide test results for impact attenuation in accordance with ASTM F 1292 Standard Specification for Impact Attenuation for Surface Systems Under and Around Playground Equipment. Results shall be provided for new material and for 12-year old material. Drain system, mats, and materials shall be installed in accordance with manufacturer's instructions and specifications. Avoid contamination of material with sand, gravel, mud, or native soil. Individual parcourse stations shall be contained by concrete curbing.

02921 Seeding (Turf/Grass Areas)

Materials:

Turf seed mix shall be Festuca rubra var rubra or var. commutata (Creeping Red or Chewings Fescue) 50%, and Lolium perenne (Turf-type Perennial Ryegrass) 50%. Hydroseeding is an acceptable method for seeding. The seed mix shall not contain annual ryegrass or bluegrass species. Weed seed shall not exceed 1 percent by weight of the total mixture and shall be free of restricted and prohibited noxious weed seed. The seed shall also be free of crop seed, and inert matter shall not exceed 3% by weight of the total mixture.

The Field Grass mix shall be Festuca trachyphylla (Hard Fescue) 33.3%, Festuca ovina L. (Sheep Fescue) 33.3%, and Festuca rubra L. (Red Fescue) 33.3%

The Contractor shall provide temporary winter grass cover in areas where permanent seeding is delayed because of the season or construction staging. Temporary seed shall consist of Perennial Ryegrass (100%).

Topsoil for improved turf areas shall be applied at a minimum compacted depth of 150 mm. Topsoil for low maintenance (field and/or erosion control) grasses shall be applied at a minimum compacted depth of 75 mm.

Delivered topsoil shall meet the following requirements: Topsoil shall be sandy loam as described by USDA textural class. Topsoil shall have a maximum particle size of 13 mm with a maximum of 3 percent retained on a 6 mm screen and a minimum of 5 percent passing through a 1.25 mm mesh screen. Topsoil shall contain a minimum of 5% for turf and a minimum of 10% for planting beds (by weight as determined by a "loss on ignition" test) of mixed, composted, fine-particle organic matter. Topsoil shall be obtained from well-drained areas and shall not contain more than 5 percent water by volume. Topsoil shall be free from slag, cinders, stones, lumps of soil, sticks, roots, trash or other material over a minimum 13 mm diameter. Topsoil shall be free from viable plants or plant parts, and toxic substances or any other material that may be harmful to plant growth. The source of the organic matter shall have a carbon to nitrogen ratio below 25:1. If the plantings are composed entirely of plants native to the Puget Sound Lowlands region, the carbon to nitrogen ratio shall be below 35:1. The pH shall be between 5.5 and 7.5. Soluble salts shall not exceed 500 ppm. Each topsoil source shall be accompanied by a guaranteed statement of analysis listing the percent of organic matter and the pH.

Amendments shall be added as determined by soil test for types of plant materials specified. Peat shall not be used as a soil amendment/conditioner. Acceptable sources of organic matter shall be as described in the UFGS. Compost shall be supplied from a permitted compost facility in Washington State. PH adjuster shall be provided as recommended by soil testing results to register between 5.5 and 7.5.

Subsoils for improved turf areas shall be scarified a minimum depth of 100 mm to improve bonding with topsoil. If soils are compacted or impermeable, subsoils shall be scarified to a minimum depth of 150 mm.

Acceptance:

An acceptable stand of turf shall be defined as a thick, healthy and strong stand of turf and ground cover with uniform cover and deep root development throughout all designated areas. Bare spots shall be a maximum 150 mm square and the total bare spots shall not exceed two (2) percent of the total seeded area.

Field Grass Areas. A satisfactory stand of turf from the seeding operation for a field grass area shall be defined as a vigorous stand with uniform cover and deep root development throughout all designated areas with no bare spots greater than 200 mm square and the total bare spots shall not exceed five (5) percent of the total seeded area.

02922 Sodding

Materials:

Grass species for sod shall be *Festuca rubra* var *rubra* or var. *commutata* (Creeping Red or Chewings Fescue) 50%, and *Lolium perenne* (Turf-type Perennial Ryegrass) 50%.

See 02921 for topsoil requirements. Topsoil for sodded areas shall be applied at a minimum compacted depth of 150 mm. Subsoils sodded areas shall be scarified a minimum depth of 100 mm to improve bonding with topsoil. If soils are compacted or impermeable, subsoils shall be scarified to a minimum depth of 150 mm.

Acceptance:

Grass plants shall be evaluated for species and health. A satisfactory stand of grass plants from the sodding operation shall be living sod uniform in color and leaf texture. Bare spots shall be a maximum 50 mm square. Joints between sod pieces shall be tight and free from weeds and other undesirable growth.

02930 Exterior Planting (Trees, Shrubs, Ground Covers, and Vines)

Grading and Soil Prep: For all landscaped areas finish grades shall be free of undulations, irregularities or low spots that will collect standing water. Provide positive drainage, with not less than two- percent surface slope away from walls and structures and toward roadways and catch basins.

Materials:

Groundcover shall be installed at a size and a spacing on-center that will provide 80% coverage within two full growing seasons (March to October is one growing season) after planting. The minimum plant sizes shall be 100 mm pots for ground covers, #2 (2 gallons) for small and medium shrubs, #3 (3 gallons) for large shrubs, 75 mm for street trees, 63 mm caliper for deciduous trees (other than street trees), and 1.8 M height for conifers.

Staking and Guying: Staking and guying of trees shall not be required. Staking can impede normal tree growth and may lead to a weaker trunk, see paragraph UNHEALTHY PLANT MATERIAL. Tree staking and guying will be allowed upon approval by the Contracting Officer Representative if site conditions warrant their use (tree of substantial size, or extremely windy location). If tree staking and guying is approved, current industry standards shall be followed and materials used to tie the tree to the stake shall be flexible to allow movement all the way to the ground. Stakes and guying material shall be removed at the end of the 12-month plant establishment period.

Topsoil for planting areas other than turf shall be applied at a minimum compacted depth of 200 mm. See 02921 for topsoil quality requirements. Topsoil for planting areas (other than turf) shall contain a minimum of 10% by weight (as determined by a "loss on ignition" test) of mixed, composted, fine-particle organic matter.

Subsoils shall be scarified a minimum depth of 100 mm to improve bonding with topsoil. If subsoils are compacted or impermeable, they shall be scarified a minimum depth of 150 mm. Organic mulch shall be applied at a 75 mm depth for all trees, shrubs, and large ground covers,

and at a 38 mm depth for low-growing, fine-textured ground covers. Trees in lawn areas shall have a minimum 1.2 M diameter mulch bed.

Edging: A 150 mm-wide by 300 mm deep concrete mow edge shall be provided between all improved lawns and planting beds. A minimum 300 mm wide by 300 mm deep concrete mow edge shall be provided between building perimeters and lawns. All other edging including edging between low maintenance grasses and plant beds and to separate different types of ground covers shall be metal.

Geotextile: Geotextile (weed barrier fabric) shall be used only with rock mulch areas that do not contain plants. Geotextile shall be nonwoven; 100% polypropylene mat in accordance with ASTM D 5034 or ASTM D 5035. It shall be made specifically for use as a commercial-grade, landscape fabric around plant material. Nominal weight shall be a minimum 120 grams per square meter. Permeability rate shall be a minimum 1 mm per second.

Acceptance:

Unhealthy Plant Material: See also Statement of Work 3-11.3.10. Unhealthy Plant Material. Trees unable to remain upright (without staking) shall be removed immediately and replaced as soon as seasonal conditions permit.

DIVISION 3: CONCRETE

03100 Structural Concrete Formwork

Provide equipment and systems in accordance with UFGS 03100a and as follows:

See Section 03300. Provide form materials including forms, ties, releasing agents, and void materials.

03150 Expansion Joints, Contraction Joints, and Waterstops

Provide equipment and systems in accordance with UFGS 03150a and as follows:

See Section 03300. Provide expansion joint filler, accessories and waterstops. Proposed joint fillers to be submitted for approval.

03200 Concrete Reinforcement

Provide equipment and systems in accordance with UFGS 03200a and as follows:

See Section 03300. Provide reinforcing bars, dowels, welded wire fabric; wire ties, and supports.

03300 Cast-In-Place Structural Concrete

Provide equipment and systems in accordance with UFGS 03300 and as follows:

No polymer resins with styrene shall be used for any concrete floor coating. No cone ends shall occur on faces of concrete in exposed-to-view surfaces. Chamfer all external corners. Furnish formwork in largest practicable sizes to minimize number of joints. Support reinforcement with approved chairs, spacers or ties. Provide joint and waterstop location layouts for approval.

Concrete shall have a minimum 28-day compressive strength of 27.5 MPa (4,000 psi), except interior slabs shall have a minimum 28-day compressive strength of 34.5 MPa (5,000 psi). Exterior slab on grades shall have a 28-day minimum flexural strength of 4.1 MPa (600 psi).

In addition to concrete, provide curing materials, non-shrink grout, bonding agent, floor hardener, dry-shake floor topping, perimeter insulation, capillary moisture barrier, and vapor barrier.

03330 Cast-In-Place Architectural Concrete

Provide materials, equipment and systems in accordance with UFGS 03330a and as follows:

Cast-in-place concrete walls exposed to view shall have an architectural finish with close tolerances and defined requirements for minimization of surface defects. Utilize form liners to provide a shallow texture for visual interest. Protect concrete from staining and discoloration. Provide surface sealer on all areas to remain exposed in finished construction as early in construction as possible to avoid staining by weather and other trades.

DIVISION 4: MASONRY

04200 Masonry

Provide materials, equipment and systems in accordance with UFGS 04200 and as follows:

A full scale sample panel with all assembly conditions defined by this section shall be included.

Concrete masonry units and brick used on Echo Block buildings shall be unit size, color and texture matching like components used on the FY 02 and FY 03 COF and BN HQ buildings. Mortar shall also be colored to match existing. . Units exposed to the exterior shall be integrally colored. CMU shall be manufactured using carefully selected aggregates to provide coloration that meets North Fort and requirements. Lintel and bond beam units shall be used. Use steel lintels at openings in veneer walls.

Air cavity in veneer wall construction shall be not less than 25 mm wide. All through wall flashings shall be copper (16 ounce minimum) or stainless steel (0.015 inch minimum thickness) sheet metal.

Conduct continuous inspection. Testing of mortar, grout, masonry cores and units is required. Testing of units for efflorescence is required. Include descriptions of construction requirements and limitations for cold and hot weather construction.

Provide reinforcement, flashing materials, control and expansion joints, weep holes, veneer ties, and insulation. Tool finish exposed joints to a dense concave surface or other acceptable weather joint. Clean masonry with approved cleaners by unit masonry manufacturer and complying with masonry manufacturer's directions and technical bulletins. Remove all cleaner residues from masonry. Seal all exterior CMU surfaces with silane or siloxane based high solids, clear sealers.

04810 Nonbearing Masonry Veneer/Steel Stud Walls

Provide materials, equipment and systems in accordance with UFGS 04810 and as follows:

A full scale sample panel with all assembly conditions defined by this section shall be included.

Brick used on Echo Block buildings shall be unit size, color and texture matching like components used on the FY 02 and FY 03 COF and BN HQ buildings. Mortar shall also be colored to match existing.

Conduct continuous inspection. Testing of mortar, grout, masonry cores and units is required. Testing of units per ASTM C 67 for efflorescence is required. Rating shall be "not effloresced". Include descriptions of construction requirements and limitations for cold and hot weather construction.

Calculations demonstrating the insulation provides the specified U-value for heat transmission of the completed exterior wall construction shall be submitted for approval. This specification section includes: brick, mortar, joint reinforcement, cold-formed steel framing, insulation, exterior sheathing, moisture protection, veneer anchors, and connections.

DIVISION 5: METALS

05090 Welding, Structural

Provide materials, equipment and systems in accordance with UFGS 05090a and as follows:

All welds exposed in finish work shall be ground smooth. Defective or rejected welds shall be cut out and replaced.

05091 Ultrasonic Inspection of Weldments

Provide equipment and systems in accordance with UFGS 05091a and as follows:

Inspection and testing of shop and field welding shall be by an approved, qualified welding inspector. The welding inspector shall certify all reports and make a record of all welds. The welding inspector may use ultrasonic testing or any other approved aid to assure the adequacy of the weld. Welding inspector shall be certified to inspect in accordance with AWS D1.1.

05120 Structural Steel

Provide materials, equipment and systems in accordance with UFGS 05120 and as follows:

Provide mill analyses and test reports. A testing laboratory shall be used for all required tests and inspections. Provide and install all structural steel, tubing, and pipe, high strength bolts, carbon bolts, nuts, washers, and paint.

05210 Steel Joists

Provide materials, equipment and systems in accordance with UFGS 05210a and as follows:

Manufacturer's certification required. Provide all accessories, extended and special ends and ceiling extensions as required. Do not apply construction loads until bridging and anchorages are completed.

05300 Steel Decking

Provide materials, equipment and systems in accordance with UFGS 05300a and as follows:

Steel Roof Deck: Provide fire resistance label and acoustical insulation strips as required. Provide adjustment plates, closure plates, accessories, and lateral and uplift attachment. Touch-up shop paint after installation. Clean field welds and abraded areas.

05400 Cold Formed Steel Framing

Provide materials, equipment and systems in accordance with UFGS 05400a and as follows:

Include all material requirements for studs, tracks, bridging and other miscellaneous light gauge framing. Identify component size and material properties for each type and variety. All stud walls to be non-loadbearing. Provide bracing for all stud walls that do not extend to structure.

05500 Miscellaneous Metal

Provide materials, equipment and systems in accordance with UFGS 05500a and as follows:

Welds to be continuous, ground smooth and flush. Exposed joints to be "hairline" quality. Miscellaneous metals can include the following: screens, gratings, shelf angles, ladders, ladder cage, steel stairs, safety nosings, handrails, guardrails, pipe sleeves, pipe bench stanchions, pipe post bollards, water heater supports, sill angles, corner guards, access doors and panels, wire and expanded metal partitions, ornamental grilles, expansion joint covers, seismic joint covers, trench covers, jambs, and backing for overhead rolling doors. Separate miscellaneous metal from dissimilar metals and from products containing lime or other substances, which will cause damage (galvanic corrosion) to occur. Include material and method of attachment to each substrate encountered for all miscellaneous metal components. Include finish requirements or reference finishes located in other specification sections.

05810 Seismic Control Joints

A UFGS section does not exist for this material. Provide materials, equipment and systems as follows:

Where structures require significant use of seismic control joints develop a stand alone section to permit complete description of joint and joint cover requirements. Coordinate the use of preformed metal, and elastomeric seals with location and exposure. Identify joint cover assemblies for use on walls, ceilings and floors of each material type encountered. Provide specific material and construction requirements for fire barrier construction.

DIVISION 6: WOODS & PLASTICS

06100 Rough Carpentry

Provide equipment and systems in accordance with UFGS 06100 and as follows:

Wood frame construction is prohibited in all building types in this project. Rough carpentry shall be limited to miscellaneous blocking, nailer and trim uses as allowed by the IBC. Material shall bear the grade mark, stamp or other identifying marks indicating grades of material and rules of standards under which produced. Flush mounted accessories, builders hardware, casework, projection screens and marker boards shall be secured to wood blocking. Minimum size acceptable is 50 mm X 100 mm for dimensional lumber or 12 mm thickness for plywood. Blocking shall be rigidly attached to minimum of two studs. Use of gauge metal banding, hollow wall, or gypsum wallboard anchors is expressly forbidden.

06200 Finish Carpentry

Provide materials, equipment and systems in accordance with UFGS 06200a and as follows:

Wood exposed to the exterior is prohibited in the construction of any building. Use of vinyl siding is prohibited. Materials shall bear the grade mark, stamp or other identifying marks indicating grades of material and rules or standards under which produced. Finish carpentry includes trim, chair rails, windowsills, built-in cabinets, counter tops, plastic laminate, and utility shelving. Coordinate finish requirements between this section, painting section and color schedules.

06410 Laminate Clad Architectural Casework

Provide materials, equipment and systems in accordance with UFGS 06410a and as follows:

Laminate clad casework shall be the standard in barracks, COF and utility areas of BN HQ facilities. Design and specify to maximize durability and easily maintained appearance for all cabinetry and associated hardware. Use AWI standards (custom is minimum grade) to control quality.

06415 Custom Casework

A UFGS section does not exist for this construction. Provide materials, equipment and systems as follows:

Custom casework, using wood exposed to view, shall be the standard in Command and Public Access areas of the BN HQ. Casework items would include features such as bulletin boards, break room cabinetry, display cases, benches and similar built-in items. Use AWI standards (custom is minimum grade) to control quality.

06610 Fiber Reinforced Plastic (FRP) Fabrications

A UFGS section does not exist for this construction. Provide materials, equipment and systems as follows:

FRP fabrications were used in previous Whole Barracks Renewal projects to provide Neo-Georgian period detailing elements such as porticos, pilasters, fascias and soffits on barracks and SCB buildings. Fabrications shall be glass fiber reinforced type with a molded surface coat

over polyester resin laminate interior. Coordinate requirements for structural framing and similar backup structures.

06650 Solid Polymer Fabrications

Provide materials, equipment and systems in accordance with UFGS 06650 and as follows:

Provide backsplashes and end/side splashes at all countertop locations where water is present. Review and select finished surface matte/gloss range consistent with high traffic low maintenance environments. Composite countertop and sink constructions are prohibited.

DIVISION 7: THERMAL & MOISTURE PROTECTION

07110 Bituminous Dampproofing

Provide materials, equipment and systems in accordance with UFGS 07110a and as follows:

Bituminous dampproofing shall be provided on the exterior face of structural CMU walls used in veneer wall systems. Dampproofing shall be fibrated type.

07131 Elastomeric Membrane Waterproofing

Provide materials, equipment and systems in accordance with UFGS 07131 and as follows:

Elastomeric membrane waterproofing shall be provided on the exterior face of any foundation walls (such as the bottom of elevator shafts) or site features such as utility vaults extending below the water table.

07132 Bituminous Waterproofing

Provide materials, equipment and systems in accordance with UFGS 07132a and as follows:

Submit manufacturer's data including technical information, which indicates full compliance with this section and manufacturer's installation instruction. Bituminous waterproofing shall be provided on the below grade exterior face of perimeter foundation walls located above the water table.

07210 Building Insulation

A UFGS section does not exist for this construction. Provide materials, equipment and systems consistent with language used in UFGS sections 07212 and 07214 and as follows:

Section purpose is to consolidate requirements for insulation. Develop section to include all insulation types and locations except for insulation in masonry veneer walls, roof assemblies and Exterior Insulation and Finish System (EIFS) that may be performed by separate trades. Polyisocyanurate rigid insulation ASTM C1289, Type I or II, and Class 1 (having a minimum recovered material content of 9 percent by weight of core material in the polyisocyanurate portion). For polyisocyanurate the maximum design R-value per 25 mm of insulation used shall be 7.2. Facings shall be non-asphaltic, glass fiber reinforced.

Provide thermal resistance values as indicated on drawings. Mechanical attachment as recommended by insulation manufacturer. Vapor retarder per ASTM D4397 and UFGS, 6-mil thick polyethylene sheeting. Vapor retarder coverage shall be 100% with seams lapped to the next framing member, sealed with an approved sealant.

Foundation perimeter and under slab on grade insulation shall be extruded polystyrene.

Clearly distinguish between insulation types used for thermal, acoustic, fire separation or combination purposes and their locations in the work.

Building insulation shall comply with building code limitations on flame spread and smoke generation as appropriate to type, location and fire rating of assembly.

07220 Roof Insulation

Provide materials, equipment and systems in accordance with UFGS 07220 and as follows:

Attachment of insulation shall meet U.L. Class 1-90 uplift requirements as demonstrated by testing. Provide polyisocyanurate rigid board insulation for use above a roof deck. Polyisocyanurate insulation shall conform to ASTM C 1289, Type II, and Class 1 (having a minimum recovered material content of 9 percent by weight of core material in the polyisocyanurate portion). For polyisocyanurate the maximum design R-value per 25 mm of insulation used shall be 7.2. Facings shall be non-asphaltic, glass fiber reinforced. Insulation attachment method coordinated with standing seam metal roof system requirements for uplift resistance.

Roof insulation shall comply with building code limitations on flame spread and smoke generation as appropriate to type, location and fire rating of assembly. Provide non-combustible sheathing between flammable insulation and occupied areas where required to meet code requirements for material or performance.

07240 Exterior Insulation and Finish System

Provide materials, equipment and systems in accordance with UFGS 07240 and as follows:

Require third party inspection by certificated inspector. Require certification of installer by the system manufacturer. Require full scale sample wall mock up with all surface/flashing conditions in the work.

EIFS shall be Class PB with provision for internal water drainage. All EIFS installed within 3 000 mm of grade shall be Class PM with provision for internal water drainage. Color and finish shall match existing surfaces on Echo Block buildings.

07322 Concrete Tile Roofing

Provide materials, equipment and systems in accordance with UFGS 07320N and as follows:

Edit all references to clay tile systems to restrict the roof system to concrete tiles. Tiles shall match type, size and color used in existing construction on Echo Block.

Eave and valley flashing shall be 20 ounce minimum copper sheet. All other roof flashing shall be 16 ounce minimum copper sheet. At eaves, rakes, valleys ridges and roof to vertical surface intersections install self-adhering, cold applied membrane consisting of polyethylene film and rubberized asphalt with minimum thickness of 1 mm. Width of strip at eaves, rakes, ridges and valleys shall be 900 mm minimum.

Require a double layer of roofing felt underlayment, except for single layer above self-adhering membrane.

Minimize use of wood materials in roof system. Utilize metal hat channels or similar material for batten strips and nailers. Battens shall use roof manufacturer's standard shimmed application for full drainage.

07413 Metal Siding

Provide materials, equipment and systems in accordance with UFGS 07413a and as follows:

Metal siding shall be steel in minimum 26 gauge with a polyvinylidene fluoride (PVF2) factory finish. Siding shall be overlapping sheet design with concealed fasteners. Include requirements for all flashing, trim, closure strips and miscellaneous components accessory to siding system. Siding shall include a ribbed profile to minimize the visual effects of "oil canning" and similar surface distortion.

Metal siding may be prefabricated insulated "sandwich" panels with exterior and interior metal siding bonded to a rigid foam filler. Foam shall use a blowing agent that minimizes outgassing and resultant blistering of panel face skin.

07416 Structural Standing Seam Metal Roof (SSSMRS) System

Provide materials, equipment and systems in accordance with UFGS 07416a and as follows:

Metal roof system shall be a fully integrated design, with all components provided by a single manufacturer and installed in the same configuration as originally tested for conformance with uplift criteria. Require submittal of manufacturer's certification of conformance with specification. Roof panels shall be minimum 24 gauge, with 38 mm (1-1/2 inch) minimum height standing seam and concealed fastener clips. Finish shall be polyvinylidene fluoride (PVF2) coating in color scheduled. Include requirements for all flashing, trim, closure strips and miscellaneous components accessory to the roof system.

07530 Elastomeric Roofing (EPDM)

Provide materials, equipment and systems in accordance with UFGS 07530a and as follows:

Elastomeric roofing is used in limited areas on the COF and BN HQ designs utilized in FY 02 and FY 03 projects. General use of elastomeric/low slope roofs as the primary roofing system is prohibited on Echo Block.

Membrane installation method shall be fully adhered. Where membrane is used below walkway pavers, use paver system approved pedestals and protection fabric to reduce risk of membrane damage.

07600 Sheet Metal Work, General

Provide materials, equipment and systems in accordance with UFGS 07600a and as follows:

This section includes, but is not limited to: flashing not related to roof or wall systems, sheet metal expansion joints, gutters and downspouts, and miscellaneous trim. Separate flashing and sheet metal from dissimilar metals and other construction materials, which will cause galvanic corrosion to occur. Fabricate architectural sheet metal to comply with the recommendations of SMACNA's Architectural Sheet Metal Manual. Coordinate requirements for paint finished versus mill finished materials.

Provide clear cross reference to flashing requirements for masonry construction and roofing that appear in other specification sections.

Specify requirements for splice joints, end dams and similar fabrication procedures for all through wall and exposed to the weather flashing types.

07730 Fall Protection Anchors

A UFGS section does not exist for this construction. Provide materials, equipment and systems as follows:

Coordinate with detailing of properties of anchors and connection of anchors to structural frame of roofs. Anchors shall be specified to be consistent with the requirements of OSHA regulation (29 CFR 1926.502). Other design requirements: Anchors and attachment to roof substructure shall have a minimum tensile strength of 22.2 kN (5,000 pounds) and shall not deflect more than 1 mm under a 10kN (2,250 pound) load. Anchor shall resist a 1.8 meter free fall of a 100 kg attached load. Anchorage shall incorporate an attachment point for a locking snap hook lanyard. Attachment point shall be at least 200 mm above adjacent roof surface. Spacing of anchors along ridge lines shall be no greater than 4 000 mm. Specify anchors to be stainless steel type 304 or 304L with series 300 stainless fasteners.

07840 Firestopping

Provide materials, equipment and systems in accordance with UFGS 07840a and as follows:

Provide clear correlation between types of firestopping and locations (penetrations, gaps, joints, etc.) where they are to be used. List alternative systems if more than one type is acceptable. Reference indications of fire rating on drawings for all walls, floors and miscellaneous assemblies as appropriate. Indicate locations where firestopping shall be finished to match adjacent construction for aesthetic reasons.

07900 Joint Sealing

Provide materials, equipment and systems in accordance with UFGS 07900a and as follows:

Sealant and related accessories shall be compatible with substrate and appropriate for each application. Caulking shall be polyurethane type. No silicone caulking to be used. Provide a

table listing sealant locations and/or the materials adjacent to the sealant joint generically, the acceptable products for use at that type of location and color matching requirements, if any.

DIVISION 8: DOORS & WINDOWS

08110 Steel Doors and Frames

Provide materials, equipment and systems in accordance with UFGS 08110 and as follows:

Doors and frames shall be factory fabricated in accordance with SDI-100 and the additional requirements of this specification section. Door grade shall be interior doors: heavy duty (Grade II), exterior doors: extra heavy duty and galvanized (Grade III, insulated). Interior and exterior doors shall have no visible seams on any face, edge, top or bottom. Both top and bottom of the door shall be closed flush. Doors and frames located on the exterior, and at laundry, toilet, locker, and shower rooms shall be galvanized steel ASTM A 653/A 653M, coating designation G90.

Frames shall be at least one standard gauge heavier than associated door. All frames shall be grouted. Frames in masonry or masonry veneer walls shall be coated with bituminous mastic on interior face and fully grouted. Frames for interior doors shall be grouted with gypsum type grout. Fort Lewis preference is to use removable mullions for door pairs rather than meeting stiles. Welded frames are required at all doors on the exterior, at corridors, transoms, sidelights, cased openings and interior glazed panels.

Where labeled openings occur, coordination is required for labeled assembly (door, frame, and hardware), not merely labeled items within the assembly. Doors and frames shall bear the specific labels as required for the rated openings. Require labels to be protected so as to be clearly legible after all painting is concluded. Coordinate requirements with Section 11025.

If used, include specification for interior windows fabricated with steel frames with removable stops.

08120 Aluminum Doors and Frames

Provide materials, equipment and systems in accordance with UFGS 08120 and as follows:

Project design wind load shall be specified. Design shall incorporate durability consistent with the occupants of the facilities, do not use narrow styles, clearly specify reinforcing requirements at hinges, pivots, closers and pulls. Exposed aluminum shall have an anodized finish.

08210 Wood Doors

Provide materials, equipment and systems in accordance with UFGS 08210 and as follows:

Wood doors shall be 45 mm thick, 2130 mm high, 5-ply, flush, solid core units. Doors to receive paint finish shall be economy grade, doors receiving natural finish shall be custom grade, birch veneer. Door finish shall be a submittal item for acceptance by the government. Doors shall be rated as and where required by Fire Codes. Specify STC rating for all doors in walls where sound control is required.

Use of wood doors on building exteriors is prohibited. Hollow core doors are prohibited.

Coordinate specification with door schedule information showing door number (keyed to Room number), size and thickness, door type, material, finish fire label requirement, hardware set number, and door frame callouts.

08331 Metal Rolling Counter Doors

Provide materials, equipment and systems in accordance with UFGS 08331a and as follows:

Rolling counter doors shall be galvanized steel construction with baked enamel finish. Operation shall be manual push up. As a safety feature provide internal backcheck mechanism to avoid gravity free fall closing of door. At rated wall construction coordinate specification of rated door panel, hardware and means of activation. Interlock door function with fire alarm system as required by code. Door shall have key operated cylinder locks accessed only from the secured room side of the door.

08520 Aluminum and Environmental Control Aluminum Windows

Provide materials, equipment and systems in accordance with UFGS 08520a and as follows:

Provide aluminum fixed and operable windows that conform at minimum to AAMA 101 HS-HC40 performance class or to performance class consistent with design pressure, whichever is greater. Minimum condensation index rating of 75. All venting windows shall be equipped with insect screens. Minimum 10 year warranty by manufacturer. All exterior windows shall have at minimum nominal 1" insulated, low e glazing. Interior pane shall be 1/4" minimum thickness laminated glass. Window frames shall be anodized or have polyvinylidene fluoride resin color finish. Finish/color shall be submitted for government acceptance. Coordinate security requirements with Section 11025.

08550 Wood Windows

Wood windows are prohibited by the DOD Minimum Antiterrorism Standards for Buildings (UFC 4-010-01).

08560 Plastic (Vinyl) Windows

Plastic and vinyl windows are prohibited by the DOD Minimum Antiterrorism Standards for Buildings (UFC 4-010-01).

08600 Skylights

Provide materials, equipment and systems in accordance with UFGS 08600.

08710 Door Hardware

Provide materials, equipment and systems in accordance with UFGS 08710 and as follows:

Specified hardware shall be coordinated to conform to the requirements listed in section 00860 – Chapter 5 of this RFP.

Comply with all ANSI/BHMA and DHI requirements for commercial grade, heavy-duty hardware and with NFPA requirements for fire and life safety. A master keyed locking system shall be provided for all doors, and shall be compatible with Best locking system to match the current Fort Lewis locking system. Cylinders and cores shall be six-pin. Cylinders shall be the product of one manufacturer. Cores shall be the product of one manufacturer. Cores and keys/keyways shall be fully integrated with and provide seamless extension of the existing master keying system. Construction interchangeable cores shall be provided. Construction cores shall be returned to the contractor after final acceptance and keying. Disassembly of knob or lockset shall not be required to remove core from lockset. All locksets, exit devices, and padlocks shall accept same interchangeable cores. Provide permanent cores, keys, and accessories prior to final inspection.

Each core KD – four keys
Each set KA – four keys
Construction keys – four total
Blank keys – four per core

Mounting height of hardware to be industry standard. All doors shall be operable from the room side without the use of a key, special effort, or knowledge. Hardware shall meet ADAAG requirements.

Incorporate the following Fort Lewis design standards into the hardware specification:

1.5 QUALITY ASSURANCE

Specify and schedule all hardware for aluminum doors in Section 08710. Require all hardware for aluminum doors to be coordinated and supplied by the aluminum door manufacturer.

1.7 CONTROL OF LOCK CORES AND KEYING

The contractor shall provide all hardware and construction (temporary) cores required to secure buildings, utility access and related work throughout the construction period. Construction cores shall have a bright color on their exposed face for ease of identification. During construction the contractor shall meet with representatives of the contracting officer, Public Works Lock Shop and the user to develop a keying schedule. This schedule shall be submitted for approval in accordance with Article: Submittals. The contractor shall provide final lock cores, complete, pinned and combined, with cut keys as specified. All final keying and combining shall be performed by a licensed, bonded locksmith approved by the contracting officer. Upon acceptance of the facility for occupancy, the contractor shall replace construction cores with final cores in the presence of the government inspector and a Public Works locksmith, test each lock for proper operation and deliver any permanent or control keys to the inspector. Prior to core change out the contractor shall provide the government, by security shipment, with keys tagged with identifying labels in the quantities indicated.

2.3 HARDWARE ITEMS

Include items 1-5 listed "For projects at Camp Lejeune"

Add to item 3. All cylinders shall be keyed to A-2 system specifications. (A-2 system specifications are available at <http://www.lab-lockpins.com/pinsicore.htm>).

2.3.4 Locks and latches

To the maximum extent possible, locksets, latchsets and deadbolts shall be the product of a single manufacturer. Bored lock and latchsets are preferred. All cylinders shall be keyed to A-2 system specifications available at <http://www.lab-lockpins.com/pinsicore.htm>.

Add the following article for room module entrance locks:

2.3.4.x Programmable Pushbutton Locks

Electronic (stand alone battery power) cylindrical lockset with clutch mechanism shall comply with ANSI/BHMA 156.2, Grade 1 (extra heavy duty). Latchbolt shall be 18 mm throw with 70 mm backset. Latchbolt shall engage manufacturer's standard strike plate and matching strike box. Lock shall be powered by internal batteries providing 4 years of operation. All lock operation code entry and programming shall be performed using a 12 button keypad. Front housing shall also provide red and green indicator lights and an acoustic device to signal lock status to the user. Lever handles shall comply with Americans with Disabilities Act (ADA). Design of lever shall be of single piece construction without any return at the end. Outside lever shall be connected to a heavy duty clutch mechanism that will permit turning the lever without retracting the latch in the locked position. Inside and outside levers shall operate independent of each other. Inside lever provides free egress at all times. Unlocking angle of rotation should not exceed 45 degrees. Outside lever shall accommodate an A-2 SFIC. Core shall allow mechanical override key operation of the lockset. Programmable pushbutton feature shall provide ability to easily change code combinations. Multiple entry codes (4 minimum) and authorization levels shall be provided. User entry code shall be adjustable from 3 to 6 digits. Memory of lock shall be non-volatile and shall retain codes for at least 1 year without battery power and while batteries are being changed. Lock shall include a tamper resistance shut down feature to limit guessing of access codes. Shut down will be maintained for up to 15 minutes.

Example product: Unican 4000 Series, by ILCO Unican Corp.

2.3.4.xx At living/sleeping room doors in room modules provide Unican 1000 Series (1021B).

Add the following:

For all projects with 100 or more new locks of one type, the contractor will deliver five (5) additional locks to the Fort Lewis Public Works Lock Shop.

2.3.5 Exit Devices – provide touch bar type. Rim devices are the preferred type.

2.3.7 Cylinders and Cores – In the third sentence of the second paragraph, delete reference to A4 system and F keyway and replace with:

The cores shall have seven pin tumblers and shall be factory set using the A-2 system (specifications available at <http://www.lab-lockpins.com/pinsicore.htm>). Keyway may be A, D, E, F, G, H, J, or K.

2.3.23 Special Tools – Add

Special tools, such as those supplied by the manufacturer for installation and/or service will be supplied to the Fort Lewis Lock Shop for field service, minimum five sets along with all sets of installation instructions and other literature provided with the locks.

Hardware Sets

At end of section include separate hardware sets for each building type with a unique numbering scheme for each building.

08810 Glass and Glazing

Provide materials, equipment and systems in accordance with UFGS 08810a and as follows:

The use of insulated laminated glass with low emissivity metallic coating is mandatory. Provide the required certification label and test reports for the units. Glazing shall meet all applicable energy conservation goals. The designer shall propose applicable STC rating.

Laminated safety glass shall be used at glazed openings that are subject to accidental human impact, and at all hazardous locations, such as sidelights adjacent to doors, glazed panels closer than 459 mm (18 inches) to the floor, and glazing in doors. .

DIVISION 9: FINISHES

09215 Veneer Plaster

Provide materials, equipment and systems in accordance with UFGS 09215a and as follows:

Use a two component system. Provide veneer plaster at main corridors and lobbies in barracks, and battalion buildings.

09250 Gypsum Wallboard

Provide materials, equipment and systems in accordance with UFGS 09250a and as follows:

Gypsum wallboard to be a minimum of 16mm (5/8-inch) in thickness. This section includes type "X" fire rated gypsum board, cement backer board, water-resistant gypsum board, abuse resistant gypsum board, impact resistant gypsum board, stud wall framing for wallboard systems, and suspended ceiling framing. Coordinate wall construction requirements with ratings and UL/FM assembly numbers indicated on drawings.

Specify STC ratings required in all wall interior types used. Minimum STC at walls providing acoustic separation shall be 45.

Acoustical sealant: where sound retardant construction is indicated, use acoustical sealant at all wall edges and penetrations and acoustical insulation as recommended by manufacturer. Provide expansion joints per manufacture and ASTM recommendations.

Finish on interior gypsum wallboard in all COF and BN HQ office, corridor, classroom and conference areas; barracks room modules, corridors and stairs, and all occupied areas in SCB to be "Level 5" per Gypsum Association Standard GA 214. Other exposed wallboard shall be "Level 4".

Abuse resistant gypsum board shall be specified at all barracks corridor walls, laundry room walls and locker room walls.

Impact resistant gypsum board shall be specified at all barracks stair walls and COF Equipment Maintenance room.

09310 Ceramic Tile

Provide materials, equipment and systems in accordance with UFGS 09310a and as follows:

Ceramic mosaic floor tile shall be slip resistant, abrasive or textured surface, chemical and corrosion resistant, and non-porous with low-absorption characteristics. Ceramic floor tile in slabs on grade to be mortar bed set, thin set shall not be acceptable. Grout to be chemical-resistant epoxy. Slope all tile floors 10 mm per meter (1/8-inch per foot) to floor drains where applicable.

Ceramic wall tile to be glazed tile installed over solid waterproof backing cementitious backer board preferred, water resistant gypsum board where necessary due to fire resistance of wall construction. Wall tile shall be installed to building code required wainscot height throughout toilet rooms (minimum surface area), except at showers where tile shall be full height of wall. Provide expansion, control, contraction, and isolation joints.

Provide 0.5% extra stock for each size and color of tile.

09440 Resinous Flooring

A UFGS section does not exist for this material. Resinous flooring is the preferred floor system for use in the Barrack room module bathrooms. Resinous flooring is not a true terrazzo product. Include requirement for integral coved wall base.

09510 Acoustical Ceilings

Provide materials, equipment and systems in accordance with UFGS 09510a and as follows:

Acoustical units shall be 600 mm by 600 mm or 600 mm by 1200 mm nominal size. Acoustical tile units shall have exposed tegular edges and a factory applied flat finish, including all exposed edges and bevels. Provide required seismic bracing of suspension system. Provide minimum NRC of .60, STC range 35-39.

Pattern, finish, color and edge treatment are at offeror's option, however options which would appreciably increase cost (over industry standard tiles) for replacement shall be submitted to COR for acceptance. Suspension system shall be standard, white, exposed grid in standard width. Use of acoustical ceilings in barracks (except for SCB public spaces) is prohibited to limit access by occupants to concealed space.

Provide separate listing for each ceiling tile type used in the project and reference the building(s) where it occurs. Provide 0.5% extra stock for each type of ceiling tile.

09650 Resilient Flooring

Provide materials, equipment and systems in accordance with UFGS 09650a and as follows:

Vinyl composition tile (VCT) flooring shall meet heavy-duty requirements for layer gauge, indentation, flexibility, solvent and stain resistance. VCT shall have color and pattern extending through the entire thickness of the tile. Provide 100 mm high wall base of rubber or vinyl in continuous rolls at all areas with VCT or carpeting. Where resilient flooring is used on stairs use a slip resistant, raised pattern rubber tile. Rubber tile shall be a product system complete with cover components for treads, risers and stringers.

Provide 0.5% extra stock for each size and color of tile used.

09680 Carpet

Provide materials, equipment and systems in accordance with UFGS 09680a and as follows:

Carpet shall be square carpet tile (modular). Use of carpet systems with high recycled content and the ability to be recycled at the end of service life is encouraged. Carpet tiles, adhesive and backing shall meet the requirements of the carpet and rug institute "indoor air quality carpet testing green label".

Standard carpet for use on Fort Lewis in administrative applications is multicolored, tweed pattern, level loop pile, 26 to 28 ounce per square yard, minimum 6000 ounce per cubic yard pile density. Heavier carpeting may be allowable for certain applications with the approval of the COR. Backing shall be integral type thermoplastic, designed for direct self adhesive application.

Provide a separate specification listing for each type of carpet used. Appearance Retention Rating (ARR) minimum criteria shall be used as determined from table included in guide specification. Carpet in COF and BN HQ buildings shall be based on the pertinent category listed in "Offices" and carpet is prohibited in barracks room modules.

Static control (3.5 kV) shall be provided for all office area carpets.

Provide 2.0% extra stock for each type and color of carpet used.

09720 Wallcoverings

Provide materials, equipment and systems in accordance with UFGS 09720 and as follows:

Submit an actual material sample of each wallcovering type and color for acceptance, minimum size of sample shall be 0.1 square meter. Wallcoverings are prohibited in the barracks.

Provide 1.0% extra stock for each type and color of wallcovering used.

09900 Painting, General

Provide materials, equipment and systems in accordance with UFGS 09900 and as follows:

All exposed surfaces without a permanent factory applied coating shall be painted unless specified otherwise. Fire alarm base plates, electrical panel covers, fire alarm bells, and other items on walls, (with the exception of fire alarm pull stations) shall be painted to match adjacent wall color. HVAC equipment and similar utility features on or near the facilities shall be made "invisible" by painting them to match the adjacent facility color. Avoid exterior painted surfaces on

any material. Where exterior coating systems are required, finishes shall be either an approved powder coat finish or two-part modified polyurethane finish.

All coating systems and alternatives for primer and top coat selected shall meet UFGS requirements and be coordinated consistent with the Master Painter's Institute (MPI) numbering system.

All interior and exterior color schemes for buildings shall be accepted by the Contracting Officer's Representative (COR) prior to painting.

09915 Color Schedule

Provide color and finish references in accordance with UFGS 09915 and as follows:

Either incorporate comprehensive color information into surface and component schedules on drawings, or provide in this section. List all Exterior and Interior finishes and colors whether an applied coating or an integrally colored material.

It is important that appropriate colors be selected for these facilities; neutral or light colors shall be utilized for large background areas and walls used for display. Color-texture graphics should be used sparingly on walls. Painted CMU is not acceptable as an interior finish for any normally occupied room. All interior appurtenances, except fire alarm pull boxes, shall match the wall color.

In general, all exterior materials used on Echo Block buildings shall match the color, texture and finish of like materials used on facilities designed and constructed under the FY 02 and FY 03 program years.

DIVISION 10: SPECIALTIES

10100 Visual Communications Specialties

Provide materials, equipment and systems in accordance with UFGS 10100a and as follows:

This section includes marker boards (white boards), tackboards and Projection Screens. Attach to wood blocking (treated in rated walls) for backing. Provide markerboards and tackboards in all Administrative offices. Provide markerboards, tackboards and wall or ceiling mounted projection screens in Conference Rooms and Classrooms. Coordinate specification with depiction of items in interior elevation drawings.

10153 Toilet Partitions

Provide materials, equipment and systems in accordance with UFGS 10153 and as follows:

Provide to meet all ADAAG requirements for accessibility. Style C, overhead braced. Urinal screens shall be wall-supported. Partitions will be solid HDPE core (finish 5). Attachment brackets and fasteners shall be stainless steel and vandal-proof. . Door hardware shall be stainless steel. Hinges shall be gravity type. Provide coat hook-door bumper, and door stop/keeper with rubber bumper.

10201 Exterior Louvers and Vents

Provide materials, equipment and systems in accordance with UFGS 10201N and as follows:

Do not include door louvers in this section. Louvers shall be fabricated with minimum material thicknesses of 2 mm for aluminum or 16 Ga. for steel. Finish system shall match that used for other sheet metal exterior components. Louver surface areas not utilized for mechanical purposes (backed by ductwork) shall have an insulated closure panel to provide a weather and thermal seal with a minimum u-value of .10. The edges of louver blades shall be folded or beaded for rigidity, and baffled to reduce leakage due to driving rain. Provide concealed interior mullions for all louvers wider than 1 500 mm. Louvers shall be provided with bird screens on interior face. Louvers shall bear the AMCA Certified Ratings Seal for air performance and water penetration ratings as described in AMCA 500. Coordinate installation with requirements of Section 11025.

10260 Wall and Corner Protection

Provide materials, equipment and systems in accordance with UFGS 10260.

10430 Exterior Signage

Provide materials, equipment and systems in accordance with UFGS 10430 and as follows:

Signage shall conform to Fort Lewis Installation signage regulations and the requirements of this RFP. Location and message of signage shall be coordinated with the installation.

10440 Interior Signage

Provide materials, equipment and systems in accordance with UFGS 10440 and as follows:

Signage shall be simple in design and pleasing in appearance. The system shall provide a permanent room number with two changeable messages strips (for occupant names) on room signs. Directory signage shall provide space for a schematic floor plan (with fire exit path information) and fully changeable message content. Interior signage shall be acrylic. All signage characteristics and mounting location shall be consistent with ADAAG requirements for accessibility. Signage shall be required at all rooms, areas, and spaces. Provide directory signage at all main building entrances. Surface mounted signs shall be provided with 1.6mm thick vinyl foam tape. Signage shall conform to Fort Lewis Installation signage regulations and the requirements of this RFP.

10505 Metal Lockers and Locker Benches

Provide materials, equipment and systems in accordance with UFGS 10505N and as follows:

Lockers and benches shall be provided at locations shown on drawings. Athletic Lockers shall be 22-gauge steel on top, sides and back with 18 gauge steel door and bottom and 12 gauge locker and door frames. Nominal locker size shall be 300 mm W x 300 mm D x 1830 mm H on a 150 mm concrete base. Provide louvers at top and bottom of door panel. Accessories shall include standard hat shelf, coat hooks and number plates. Tamper guard

handle shall accommodate standard padlock (NIC). Lockers shall be wall anchored, have leg closure panel, sloped top and baked enamel finish.

TA-50 Gear Lockers shall be 14-gauge expanded or punched steel on top, sides and back and door with 14 gauge solid steel bottom and 12 gauge locker and door frames. Nominal locker size shall be 1220 mm W x 610 mm D x 1830 mm H on a 150 mm concrete base. Include number plates. Tamper guard handle shall accommodate standard padlock (NIC). Lockers shall be wall anchored (or anchored to each other at "island" locations), have leg closure panel, sloped top and baked enamel finish.

Locker benches shall be provided at locations shown on drawings. Bench shall be laminated hardwood, minimum 200 mm wide by 30 mm thick, finished with clear acrylic. Pedestals shall be cast iron, 450 mm high, finished with baked enamel and secured to the floor with expansion anchors.

10520 Fire Extinguisher Cabinets and Accessories

A UFGS section does not exist for this material. Provide materials, equipment and systems in accordance as follows:

Fire extinguisher cabinets shall be semi or fully recessed with flat trim. Fire extinguisher cabinets, all appurtenances, and accessories shall be factory painted, red color. Cabinets in rated walls shall be rated to match, or recess notch designed to maintain the wall rating. Fire extinguishers will be provided by others.

10550 Postal Specialties

A UFGS section does not exist for this material. Provide materials, equipment and systems as follows:

Postal Specialties shall include Horizontal Mailboxes for all barracks occupants and Letter Boxes for outgoing mail. All postal specialties shall conform to United States Postal Service regulations for size, configuration and mounting locations.

10650 Operable Partitions

Provide materials, equipment and systems in accordance with UFGS 10650a and as follows:

Operable Partitions (used to divide classrooms in the BN HQ buildings) shall be manual operation type, extend to fill the entire room length and be continuous from floor to ceiling. Panels shall incorporate full acoustic seals on all edges, top and bottom. Seal extension and jamb closure shall be activated using a removable crank handle. Panels shall provide acoustic separation of STC 50 per ASTM E 413. Panel surface shall be vinyl fabric. Provide porcelain markerboard on both faces of partitions for at least one half of the partition length. Support track sections shall be fabricated from architectural grade, extruded aluminum alloy 6063-T6.

10800 Toilet Accessories

Provide materials, equipment and systems in accordance with UFGS 10800 and as follows:

Provide in toilet rooms and bath rooms as required by this RFP and otherwise applicable: medicine cabinets, soap dispensers, mirrors, toilet paper dispensers, folded paper towel dispensers, grab bars, paper towel waste receptacles, garment hooks, and metal shelves. Provide sanitary napkin disposals in each women's water closet stall. At each shower provide recessed soap dish, towel hook and shower curtain and rod. Provide semi-recessed accessories, where possible. Mirrors shall be a single panel with width to match the adjacent lavatory countertop.

Electric hand dryers may be used in lieu of paper towel dispensers at multiple fixture toilet rooms in COF and BN facilities.

Provide a mop rack and shelf in janitor closets.

Provide a toilet hardware matrix schedule in this section for each building type identifying the accessory item, the number of that accessory type and the number of the room mounted in.

10990 Miscellaneous Building Specialties

A UFGS section does not exist for this material. Provide descriptions of all materials/components requiring additional definition and not adequately covered by other sections. Typical components include: telephone enclosures, TV/VCR wall mounting brackets and recessed entrance gratings and mats.

DIVISION 11: EQUIPMENT

11020 Security Vault Door

Provide materials, equipment and systems in accordance with UFGS 11020 and as follows:

Steel security – vault type door with frame shall be of standard product from manufacturer specializing in this type of fabrication. Design of door and frame to conform to Federal Specifications FS AA-D-00600. Single leaf door shall have clear opening of 1015 mm (40 inches) wide by 1980 mm (78 inches) high. The door shall be Class 5, Type "IR" - right opening swing with optical device or "IL" - left opening swing with optical device, as indicated on drawings, Style K - key change combination lock. The optical device shall permit observation from the inside to the outside of the vault.

Day gates shall be provided at Arms Room entrances. Day gates shall be manufactured and installed as designed and detailed in the drawings. Size and mounting position of day gate shall be coordinated with the vault door furnished, and shall provide access control and visual security. The gate shall be hinged on the same jamb as the vault door, shall swing into the vault, and shall have a locking device operable from outside by key and from inside by knob or handle. Day gate shall be of steel construction throughout. Provide high security hasp (NSN 5340-00-178-7872) accessible from vault interior. Gate shall be constructed with a pass through opening complete with shelf.

11452 Residential Appliances

A UFGS section does not exist for this equipment.

Provide continuous protection of all appliances stored on site or installed in the work until final acceptance. Appliances furnished by the government may be stored on site. Appliances listed in this outline are consistent with previous projects, however, the contractor shall coordinate during design and construction with the COR and Fort Lewis installation furnishings coordinator to verify actual appliance purchases.

Include the following testing requirements:

3.x TESTING

Equipment shall be inspected and tested under operating conditions after installation. If inspection or test shows defects, such defects shall be corrected, and inspection and test shall be repeated. Equipment tests shall include the following:

3.x.1 Operating Tests

An operating test shall be performed on all items (except GFGI) after complete installation and adjustment. The failed test item shall be corrected and the test shall be rerun.

3.x.2 Equipment Start-Up/Demonstration

As necessary, the Contractor shall obtain the services of the manufacturer's representative experienced in the installation, adjustment and operation of the equipment specified. The representative shall supervise the start-up, adjustment, and testing of the equipment, prior to the demonstration. Equipment shall be carefully tested, adjusted, and regulated in accordance with the manufacturer's instructions and shall be so certified in writing. A thorough operational demonstration shall be provided of all equipment and instructions furnished for general and specific care and maintenance. Selected items of equipment and attendees shall be scheduled, with the Contracting Officer, at least 2 weeks in advance of demonstration periods.

3.x Clean and Adjust

Debris resulting from this work, as the installation progresses, shall be removed from the jobsite on the same day. All appliances, (except GFGI) prior to demonstration, shall be cleaned and polished, both interior/exterior. Drawer slides and casters shall be lubricated and adjusted. Pressure regulating valves, timed-delay relays, thermostatic controls, and temperature sensors, shall be adjusted, as required, for proper operation. Faucet aerators and line strainers shall be cleaned or replaced. Damage to painted finishes shall be touched up.

Appliances will have one of three contract characters:

Government Furnished and Government Installed (GFGI):

Combination Microwave Refrigerator/Freezer (at Barracks Room Modules)

Microfridge model MF-10 TP incorporates both appliances in a stacked unit. Overall size of unit is 600 x 1810 x 711 mm (w x h x d). Coordinate cabinet size and location to permit appliance location as indicated on drawings. Appliance may be purchased in single or dual plug configuration. Confirm type acquired and style of plug. Coordinate electrical outlet requirements.

Dispensing Ice Machine (at common area)

Ice machine model shall be Manitowac QFA-291. Unit is water cooled and will provide up to 180 pounds of ice storage. Overall size of unit is 760 x 1540 x 810 mm (w x h x d). Coordinate power, water supply and drainage (storage hopper and condenser) requirements including backflow prevention per code.

Government Furnished and Contractor Installed (GFCI):

Stacked Washing Machines/ Clothes dryers (at Barracks room modules)

Maytag high-efficiency model MLG2000. Overall size 686 x 1840 x 730 mm (w x h x d). Confirm and coordinate facility built in requirements for water, waste, gas and electrical connections. Provide service connections to accommodate gas or electric dryers. Verify actual appliance selected during design.

Contractor Furnished and Installed (CFI):

Range (at Barracks Room Modules)

Range shall be an electric drop-in type complete with oven and smooth ceramic type cooktop. Oven shall be 4 cubic foot capacity, self-cleaning, with 2 racks and glass window door. Cooktop shall be four element, radiant type with "Ceran" or similar surface and 'hot surface' indicator lights. Nominal size of range shall be 780 x 710 x 670 mm (w x h x d). Coordinate size and configuration of cabinetry cutout with actual unit selected. Coordinate power outlet requirements with actual unit selected. Color of unit shall be white on white.

Representative products:

General Electric model JDP46WDWW.

Maytag model MEP5770A.

Whirlpool model RS696PXGQ

Exhaust Hood (at Barracks Room Modules)

Exhaust hood shall be built-in, exhaust to exterior type. Features shall include multi-speed fan, removable/washable grease filters and internal hood light to illuminate range cooking surface. Nominal size of exhaust hood shall be 760 x 150 x 445 mm (w x h x d). Design of hood shall not create any exposed sharp metal edges. Coordinate size and configuration of cabinetry cutout with actual unit selected. Coordinate power outlet, and vent ducting requirements with actual unit selected. Color of unit shall be white.

Representative products:

Broan Model 463011

GE Appliances Model JV535CWW

Whirlpool Model RH2330XJQ

DIVISION 12: FURNISHINGS

12490 Window Treatment

Provide materials, equipment and systems in accordance with UFGS 12490A and as follows:

Horizontal window blinds shall be Type II 25 mm (1-inch) aluminum slats. Coordinate color with interior finish. Provide blinds at all exterior windows with the exception of: 1) corridor windows in Barracks and SCB, and 2) glazing at exterior doors.

12675 Floor Grating and Frame

A UFGS section does not exist for this equipment. Specification may be incorporated into Miscellaneous Specialties. Provide materials, equipment and systems in accordance as follows:

Exterior Grating: Frame shall be fabricated of stainless steel and furnished complete with concrete anchors, corner splices, etc., as required for recessed installation. The frame shall accept the grating thickness on one side and be flush with the finished surface on the other side, and shall provide a controlled recess depth for a flush, continuous walking surface. Grating shall be fabricated of stainless steel grille. Recessed concrete pan shall slope 21 mm per meter (1/4" per foot) minimum to a drain in the concrete pan.

Interior Grating/Mat: Frame shall be fabricated of aluminum extrusion conforming to ASTM B 221, alloy 6063, temper T5. The frame shall be furnished complete with concrete anchors, corner splices, etc., as required for recessed installation. The frame shall be of the universal type to accept the grating on one side and to accept a variety of floor finishes on the other side, and to provide a controlled recess depth for a flush, continuous walking surface. Grating surface shall be carpet inserts having fusion bonded cut pile. Inserts shall be locked into treadrails shall be fabricated from 6063-T5 aluminum alloy and joined in a continuous hinge system to allow easy roll-up and removal for cleaning. Treadrail will be standard bronze anodized.

DIVISION 13: SPECIAL CONSTRUCTION

13080 Seismic Protection For Miscellaneous Equipment

Provide equipment and systems in accordance with UFGS 13080 and as follows:

Provide seismic bracing for suspended ceilings, electrical equipment and conduit and mechanical equipment, ductwork and piping.

13100 Lightning Protection System

Provide equipment and systems in accordance with UFGS 13100A and as follows:

Provide Lightning Protection System in accordance with NFPA 780, ETL 90-6 and UL 96A.

13110A Cathodic Protection System (Sacrificial Anode)

Provide equipment and systems in accordance with UFGS 13110A.

13112A Cathodic Protection System (Impressed Current)

Provide equipment and systems in accordance with UFGS 13112A.

13201 LPG (Propane) Fuel Storage Systems

A UFGS section does not exist for this material. Provide specifications for all materials at the tank farms required including the propane storage tanks, transfer pumps, water bath vaporizers, gas-air mixers, air compressors, truck offloading stations, piping, meters, instrumentation, gauges and controls.

13721 Intrusion Detection System

See Technical Specification 13721 provided.

13851 Fire Detection And Alarm System, Addressable

Provide a complete Fire Alarm System in accordance with UFGS-13851a and the following:

The Fire Alarm System panel and all devices shall be of the addressable type and be completely compatible with the existing base system that uses King-Fisher central receiving equipment. The Fire Alarm System shall monitor all devices and transmit any alarms to the Base 911 center.

Wiring on fire alarm system components shall be Style A for alarm initiating devices and Style Z for indicating devices.

Smoke detectors shall be the photo-electric type. Smoke detectors in sleeping rooms shall be single action alarm device type operated from the fire alarm control panel's power and having reverse polarity sounding capability. Upon an alarm condition shall be non-latching, not require reset at the fire alarm panel after a local alarm, and not cause the transmitter to send an alarm or trouble. Any smoke, heat or duct detectors that are above ceilings or in concealed spaces shall have a remote LED indicator. Duct detectors shall be installed in air handling unit (AHU) systems which have more than 2000cfm airflow, per NFPA 90A, and shall be resettable from the control panel.

Notification appliances in individual sleeping rooms of dormitories that sound with the general alarm shall silence with the general alarm silence function from the fire alarm panel. Manual fire alarm pull stations shall be double action type. When device is mounted externally on brick or exterior surface, a rubber gasket shall be used (to reduce electrolysis and grounds).

Spare parts, manuals for fire alarm system, documentation showing mapping/tree of devices (showing the polling sequence), and all software/hardware required for programming/editing shall be turned over to Public Works personnel at the time of acceptance testing. Spare parts will include 2% or a minimum of 2 of each type of device used in the system (bases, sounder bases, modules, detectors, pullstations, hornstrobes, magnetic door holders, etc.).

All specialized equipment and/or training to program, edit existing program, add or delete devices, etc. shall be provided as part of the fire alarm system. Systems that require factory certification to process or use their software shall include this training. Include transportation, lodging, etc. when training is not available locally.

13930 Wet Pipe Sprinkler System, Fire Protection

The entire area of each building shall be provided with wet pipe sprinklers. Install systems in accordance with UFC 3-600-1, NFPA 13 and NFPA 24. All pipe, valves and fittings shall be UL labeled and FM approved. Use semi-recessed, chrome plated, glass bead type sprinklers in the administrative areas. Use concealed type sprinklers in the barracks room modules. Do not use gripper fittings in the piping system. Grooved joints and fittings shall not be installed in concealed locations. Provide tamper switches for main sprinkler/standpipe valves and for sprinkler zone valves on each floor, as well as the Post Indicator Valve. Underground piping shall be in accordance with NFPA 24. Double check back flow preventers shall only be installed in the position certified by the manufacturer. Sprinkler systems shall be hydraulically designed. Inspector's test connection shall be located at riser with UL listed site glass flow device. The test connection discharge shall be located outside the building wall directed so as not to cause damage to adjacent construction or landscaping during full flow discharge or to an adequate drain that will handle the discharge. Drain valves shall have plugs. All sprinkler systems shall always be disinfected. All pipe flushing, tests and inspections shall be witnessed by Fort Lewis Fire Department. Copies of all as-builts, test certificates, and related system documentation shall be provided to the Fort Lewis Fire Department.

DIVISION 14: CONVEYING SYSTEMS

14240 Elevators, Hydraulic

Provide materials, equipment and systems in accordance with UFGS 14240 and as follows: Nominal Elevator Schedule (Passenger), confirm with manufacturer/model selected.

Number Required:	2 (1 at each Large Battalion HQ)
Service:	Passenger
Capacity:	1,135 kg (2500 pound)
Speed:	0.50 m/s full load up 0.75 m/s down speed
Platform Size:	2 134 mm wide by 1 500 mm deep
Clear Car Inside:	2 032 mm wide by 1 295 mm deep
Net Travel:	4 300 mm
Landings:	2
Openings: Front	914 mm x 2 134 mm
Openings: Rear	n/a
Entrance Type:	Horizontal-sliding/side opening

Provide emergency phone system meeting ADAAG requirements:

A telephone system in stainless steel cabinets shall be provided for passenger elevators. A vandal-resistant speaker type intercom with push-buttons to activate shall be installed in car station behind a stainless steel perforated grille and connected to a programmable auto-dialer located in machine room. Auto-dialer shall be provided with a solid-state charger unit, which will automatically provide emergency power and an immediate transfer in the event of failure of normal power supply. The push-button located in car station or in separate cabinet shall be at the prescribed height for access by the disabled and shall be identified as "EMERGENCY PHONE PUSH TO ACTIVATE". The entire communication assembly shall be approved for an elevator installation. The push button telephone shall comply with FED-STD 795 and 36 CFR 1191. The telephone communication shall not be terminated until one of the communicating parties hangs

up the receiver or manually disconnects the communication link. Auto-dialer shall connect to on post 24-hour emergency number, verify number with Ft. Lewis Emergency Services.

Provide elevator pit sump system:

Pit sump shall be equipped with float switch activated automatic sump pump. Sump pump shall not discharge directly to sanitary or storm sewers. Activation of sump pump shall signal through HVAC DDC control system and illuminate a wall mounted signal light, location as indicated. Pump shall discharge to 20 gallon holding/inspection container located in elevator machine room. Holding/inspection container shall have a valve controlled drain to sanitary sewer.

DIVISION 15: MECHANICAL

15070 Seismic Protection For Mechanical Equipment

Provide equipment and systems in accordance with UFGS 15070A.

15080 Thermal Insulation for Mechanical Systems

Provide equipment and systems in accordance with UFGS 15080A.

15190 Gas Piping Systems

Provide equipment and systems in accordance with UFGS 15190A and as follows:

See 02556 Gas Distribution System.

15400 Plumbing, General Purpose

Provide equipment and systems in accordance with UFGS 15400A. Plumbing vents through the roof shall be minimized as much as possible by consolidating all vents at one point. All aboveground pressurized potable water piping shall be copper. All water heaters with over 1500 liter (400 gallon) capacity shall be provided with a minimum 10 year limited warranty for tank replacement. Backflow preventers shall be tested by a Washington State certified tester and standard form available from Public Works for testing shall be used.

15569 Water Heating; Gas; up to 20 MBTUH

Provide equipment and systems in accordance with UFGS 15569A and as follows:

Hot water generators (HWG) shall be designed, constructed and equipped in accordance with the ASME Boiler Pressure Vessel Code, Section IV, Heating Boilers. Each HWG shall be self contained, steel, horizontal, 3 pass or greater, wet backed scotch marine packaged firetube type complete with all accessories, mounted on a structural steel base. The HWG capacity shall be based on the ratings shown in HYI-01 or as certified by the American Boiler Manufacturers Association, or American Gas Association. HWG shall be designed to burn natural gas. A propane/air mixture with heating value roughly equivalent to natural gas will be used as an alternate fuel source using equipment designed for natural gas. Each HWG shall comply with Federal, State, and local emission regulations. Burners shall be UL approved, fully modulating,

mechanical draft burners with all air necessary for combustion supplied by a blower where the operation is coordinated with the burner. Burners shall be provided complete with gas supply system in conformance with UL 795, ANSI Z21.13 or NFPA 8501. Combustion safety controls and equipment shall be UL or IRI listed and conform to ASME CSD-1. As a minimum, the burner controller shall provide all functions of a Honeywell 7800 Series controller with troubleshooting module. Temperature gauges shall be provided in lieu of thermometers. Temperature and pressure gauges shall be round dial type.

15895 Air Supply, Distribution, Ventilation and Exhaust System

Provide equipment and systems in accordance with UFGS 15895A and as follows:

Isolation valves 64mm (2 ½") and smaller shall be full port ball valves. Isolation valves 75mm (3") and larger shall be gate valves. Propylene glycol shall be used in lieu of ethylene glycol for freeze protection of the hydronic hot water heating system.

15910 Direct Digital Control Systems

A revised specification section 15910 is provided in Attachment. This revised section 15910 reflects the most recent requirements which complies with Ft Lewis DDC standards. The contractor is required to further refine the specification to meet the Ft Lewis DDC standards.

15990 Testing, Adjusting and Balancing of HVAC Systems

Testing, adjusting and balancing shall be accomplished in accordance with UFGS 15990A.

15995 Commissioning of HV Systems

All HV systems and equipment including controls shall be commissioned in accordance with ASHRAE Guideline 1. The commissioning specification, UFGS 15995A, which the contractor tailors based on the ASHRAE Guideline 1, is a detailed description of the scope and objective of the construction, acceptance, and post-acceptance phases of the HVAC commissioning process. The commissioning specification is required to contractually implement the post-design phases of the process. It must be project specific. Commissioning of systems and equipment shall take place only after TAB work is complete. An independent qualified firm or agency specializing in such work shall complete commissioning work. The independent firm or agency shall furnish a written report on the commissioning work. Commissioning work shall be coordinated with DDC system commissioning and training for the DDC system's operating personnel. All commissioning shall be performed in accordance with UFGS 15995A except for the following:

- a) In paragraph 3.1 "Commissioning Team and Checklists" the second sentence shall be changed to read: "In addition, the Government will be represented by a representative of the Contracting Officer, and the Using Agency."
- b) In paragraph 3.1 "Commissioning Team and Checklists" the Designation "D" shall be changed to "Contractor's Mechanical Designer."

All functions of the details sequences of operations shall be tested.

Division 16: ELECTRICAL

16070 Seismic Protection For Electrical Equipment

Provide all necessary requirements in accordance with the UFGS-16070A.

16370 Electrical Distribution System, Aerial

Provide overhead to underground transition in accordance with UFGS-16370A.

16375 Electrical Distribution System, Underground

Provide equipment and a complete system in accordance with UFGS-16375A and the following:

Medium voltage cables shall be soft drawn copper, rated for 15 kV circuit voltage.

Medium voltage cable terminations shall be 15 kV between phases for 133 percent insulation level.

Power transformers shall be pad-mounted, oil-filled, loop-feed, outdoor type in accordance with the requirements of ANSI C57.12.26. Power transformers shall be placed on vaults with conductors fire-taped, looped and racked.

Pull-through vaults shall have hinged, diamond plate lids and conductors shall be fire-taped, looped and racked.

16415 Electrical Work, Interior

Provide complete electrical system including power, lighting, control and distribution in accordance with UFGS 16415A.

16475 Coordinated Power System Protection

Coordinated power system protection shall be in accordance with UFGS 16475A.

16528 Exterior Lighting Including Security and CCTV Applications

Provide electrical equipment and systems for parking and walkway lighting in accordance with UFGS-16528A and the following:

All exterior electrical shall be routed underground.

Within ECHO Block, the parking area poles and luminaires, bollards, and walkway poles and luminaires shall match existing fixtures installed in the previous projects. In ALPHA Block, luminaires for the parking areas and walkways shall be selected to meet the Sustainable Design goal to reduce overall light pollution. Exterior finish of poles, fixtures, and bollards shall be compatible with Architectural style and materials of other site features.

16710 Premises Distribution

Interior distribution system for telecommunications system shall be in accordance with UFGS 16710A and the details in this RFP.

16711 Telephone System, Outside Plant

Exterior distribution system for telecommunications system shall be in accordance with UFGS 16711A and the details in this RFP.

16770 Radio and Public Address Systems

Provide a public address system in accordance with UFGS 16770A.

END OF SECTION

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SECTION 01001

SUPPLEMENTARY REQUIREMENTS

PART 1 GENERAL

1.1 DEFINITIONS

The references listed below are to be defined as indicated wherever they may be used in the TECHNICAL SPECIFICATIONS.

"SUPPLEMENTARY REQUIREMENTS " shall be read to pertain to any of the sections of the DIVISION 1 as required by the content of the section or paragraph containing the reference.

1.2 CONSTRUCTION SCHEDULING

The instructions for preparation and submittal of the Contractor-prepared Network Analysis System are found in SECTION 01320, PROJECT SCHEDULE.

1.3 CORRESPONDENCE

1.3.1 All correspondence shall be addressed to the Administrative Contracting Officer, shall be serially numbered commencing with Number 1, with no numbers missing or duplicated and shall be furnished with an original and one copy. Enclosures attached or transmitted with the correspondence shall also be furnished with an original and one copy. Each serial letter shall make reference to the contract name, contract number and shall have only one subject.

1.3.2 All correspondence from the Contracting Officer will be also serially numbered with no numbers missing or duplicated. Letters to the Contractor will be forwarded in duplicate.

1.3.3 In the event there is more than one project within a contract, correspondence shall contain separate and distinct submittals to identify each project by name.

1.3.4 For submission of Contractor payment requests, See Section 01025, PAYMENT.

1.4 ADVANCED NOTICE OF CONTRACTOR PERFORMED ACCEPTANCE TESTING

The Contractor shall notify the Contracting Officer a minimum of 20 days prior to performing any acceptance or "buy off" testing of the following systems, (1) EMCS, (2) Fire Detection/Protection, (3) Intrusion Detection System, (4) Uninterruptible Power Supply, and (5) HVAC. Advance notification is not required for testing performed as part of fabrication or installation.

1.5 CONTRACTOR'S FILES

Contractor shall maintain "Approved (Action Code "A") and "Approved Except as Noted (Action Code "B") shop drawing files in fabrication shops and at project sites for government use.

1.6 AUDIO-VIDEO RECORDINGS

1.6.1 General

The Contractor shall provide all equipment, materials, and trained personnel to visually and audibly record (video tape) all on site operations and maintenance (O&M) training sessions for this contract. The video technician shall be employed by a video production company that has been in business for a minimum of 2 years. The Contractor shall submit the resume of the technician and video production company. Also the Contractor shall submit for approval an agenda or an outline breakdown of the proposed presentation. Video tapes shall be produced in the VHS format. Audio shall be adjusted, filtered or otherwise controlled to ensure that the trainer can be understood at all times. Each system or piece of equipment shall be covered in a single tape or set of tapes which shall be correlated with the O&M manuals provided. Video tapes and their individual storage cases shall be identified with a typewritten label showing the project, equipment or system, and contract number; this same information shall be provided as an introduction on each video tape. When two or more tapes are provided, they shall be submitted as a set in an appropriate storage container.

1.6.2 Submittals

Prior to conducting the training sessions the following shall be submitted for approval:

- 1) A training plan consisting of the agenda or an outline breakdown of the proposed presentation and
- 2) The qualifications of the trainer and the video recording technician

Two copies of the video taped material shall be submitted to the Contracting Officer within 10 days after completion of video taping the training sessions.

1.7 MECHANICAL AND ELECTRICAL LAYOUT DRAWINGS

The Contractor shall submit, for Contracting Officer's approval, scaled layout drawings, including appropriate elevations and sections, as required, showing the room arrangement the Contractor proposes for all pieces of mechanical and electrical equipment and appurtenances thereto, such as but not limited to: air conditioning equipment, boilers, compressors, hot water tanks, pumps, electrical control panels, ducts and piping that are to be located in the room. Mechanical and electrical layouts shall be coordinated to eliminate any conflicts of installed equipment. No payments will be made to the Contractor for furnishing or installing equipment until the layout drawings have been approved by the Contracting Officer. Mechanical and electrical equipment layout drawings shall be identified and submitted as specified herein. Equipment rooms shown on the drawings are of adequate size to accommodate equipment of required capacities as available from several manufacturers with sufficient space left for access, servicing, and removal. The use of equipment items with dimensions such as "to crowd the space" will not be permitted.

1.8 PROJECT PHOTOGRAPHS

1.8.1 General

The Contractor shall furnish photographs depicting construction as specified herein. The photographs shall be in digital JPEG format, with a resolution of 1024 x 768 pixels or better, size limited to less than 300KB. Photos shall be submitted in a Word document, with a caption under each photo showing date taken, project location, contract title and number, and a brief description of what the photo depicts. The photos shall be submitted on a 133 mm ISO-9660 CD-ROM.

1.8.2 Progress Photographs

Construction progress photographs shall be taken between the 1st and 15th of each month and delivered to the Contracting Officer with the payment request for the month taken. Photos shall be taken from 10 positions. Location of positions shall be coordinated with or may be selected by the Contracting Officer. They shall show, inasmuch as practicable, work accomplished during the previous month. Photographic quality and composition of photos shall be such that they can be used for briefings and/or to illustrate articles on the construction progress of the project.

1.8.3 Completion Photographs

Construction completion photographs, in the same format as the progress photographs, shall be taken upon completion of construction and delivered to the Contracting Officer not later than 15 days prior to project completion. It is the intention of the Government to obtain slides whose color, clarity, and composition are such that they can be used for briefings and/or to illustrate articles on the completed project. Slides shall be taken from 10 positions. Location of positions shall be coordinated with or may be selected by the Contracting Officer. Slides shall show the completed project to the best advantage, and shall include overall site photos as well as photos of major features.

1.9 COLOR BOARDS

Three sets of color boards shall be submitted within 60 calendar days after receipt of Notice to Proceed with Construction. Color boards required by these specifications are in addition to those provided during design review. The boards shall include samples of colors and finishes of every finish such as on walls, floors, and ceilings. This would include, but not be limited to, paint, floor and wall tile, acoustical panels, carpet, wall base, plastic laminate, etc. Where special finishes such as architectural concrete or prefinished metal panels are required, samples of not less than 305 mm (12 inches) square shall be submitted with the board. Boards shall include, where applicable, color samples of integrally colored block, brick, and prefinished metal roofing and siding. The board shall be 610 mm by 610 mm (24 inches by 24 inches). If more space is needed, more than one board per set may be submitted. This is not meant to replace the samples called for in other portions of the specifications. The Contractor shall certify that he has reviewed the color boards in detail and that they are in strict accordance with the contract drawings and specifications, except as may be otherwise explicitly stated.

1.10 SAMPLE ROOM

After all finish materials have been submitted and approved, but prior to the installation of any of them, the Contractor shall construct and completely finish one sample room for each building type that is/will be representative of all other rooms. Finishes shall include, but not necessarily be limited to, paint, wall covering of any type, floor finish of any type including base, ceiling finish of any type, and all electrical and mechanical finish trim. No payment will be made for any installation of finish materials until this room has been constructed and approved by a representative of the Contracting Officer. Once approved, this room shall serve as the "model" for finish and workmanship of all other rooms in the facility.

1.11 IDENTIFICATION OF EMPLOYEES AND MILITARY REGULATIONS:

(a) The Contractor shall be responsible for compliance with all regulations and orders of the Commanding Officer of the Military Installation, respecting identification of employees, movements on installation, parking, truck entry, and all other military regulations which may affect the work.

(b) The work under this Contract is to be performed at an operating Military Installation with consequent restrictions on entry and movement of nonmilitary personnel and equipment.

(c) The Commanding Officer of Fort Lewis, Washington, has initiated the following specific requirement regarding vehicle registration for this contract.

Contractors performing work on Fort Lewis shall, after award, register all vehicles to be used on the installation with the Vehicle Registration Section of the Law Enforcement Command. Contractor employees entering the installation in privately owned vehicles (POVs) shall also register their vehicles. A copy of contract award, proof of liability insurance, current driver's license and state vehicle registration shall be required to register Contractor, subcontractor, and employee vehicles.

Upon completion of the contract, it shall be the prime contractor's responsibility to collect all vehicle decals issued under the contract including those issued to employees and subcontractors. Decals are to be carefully removed from the vehicle, placed in an envelope and attached to the original documentation (i.e., post vehicle registration document) received with the decal. Decals, with documentation, must be returned to Vehicle Registration, Building 2140. Proof of decal clearance for all vehicles registered under this contract will be issued to the prime contractor and shall be returned to the Contracting Officer prior to final payment.

In the event of contract extension, it shall be the prime contractor's responsibility to report time extension to Vehicle Registration, with evidence of same. For further information, contact Vehicle Registration at Waller Hall, Building 2140 (Telephone: (253) 967-5065), Fort Lewis, Washington 98433-9500.

(d) Employee Access and Identification: The employee who requires access to Fort Lewis to perform work under this contract shall obtain a Government issued identification badge.

1. Employee Access: The contractor shall, prior to the contract start date, provide the sponsoring agency the name of the employee who shall require access to Fort Lewis to perform work. This notification shall include the employee's last name, first name and

middle initial and the employee's Social Security Number. The contractor shall ensure that the employee obtains a badge prior to beginning performance. Contractor employees hired during the term of the contract must obtain the badge before beginning work under the contract. If an employee no longer needs a badge for any reason (e.g., quits his/her job or is no longer performs work under the contract), the Contractor shall return the badge to the Contracting Officer's Representative (COR) within two (2) calendar days of such change. If the badge cannot be returned within the required time frame for any reason, the contractor shall immediately notify the COR verbally, followed up in writing the next work day. An employee's inability to obtain entrance to a Government installation because he/she does not have the required Government provided ID badge shall not excuse timely performance of the requirements of this contract. Contractor employees may be denied entry to the Installation by Military Police if it is determined that such entry may be contrary to good order, discipline, of the security of the Installation. The Government may change the location(s) at which badges are issued or returned, with or without advance notice to the Contractor, at no additional cost to the Government as a result thereof.

2. Contractor Request for Government Identification Badge. The required information shall be submitted to the Sponsoring Agency on the form entitled *CONTRACTOR REQUEST FOR GOVERNMENT IDENTIFICATION BADGE (S)*. The form is on the Directorate of Contracting web page and may be accessed at web address <http://150.192.40.37:82>. After approval by a Contracting Officer, contractor shall be directed to have employee(s) report to a specified building to obtain their badges.

3. Lost or Stolen Badges. Government provided ID badges shall not be reproduced or copied by the Contractor, its subcontractors, or their employees. If an employee's badge is lost or stolen the Contractor shall verbally report the loss or theft to the COR on the day such loss or theft is discovered; followed by a written report of the circumstances to the Contracting Officer. The within report shall be completed one (1) calendar day after the loss or theft is discovered.

4. Use and Wear of Badge. Each contractor employee shall wear Government furnished identification badge while performing work under the contract. The badge shall be worn on the upper front of the outer garment unless precluded by OSHA regulation(s). The badge shall not be used for access to any Government installation except for performance of work under the contract for which it was issued.

5. Expiration/Termination. The contractor shall, upon expiration or termination of the contract, collect all badges and turn them in to the COR. The final invoice will not be considered proper for purposes of the Prompt Payment Act (FAR 52.232-25, in Section I) until all badges have been accounted for.

6. Compliance with Rules, Regulations, and Statutes. All contractor employees shall observe and comply with all applicable local, State, and Federal rules, regulations, and statutes including those concerning fire, safety, sanitation, security, vehicle safety, and hazardous material handling.

7. Firearms. Contractor personnel while performing work under this contract shall carry no firearms.

8. Entrance Denial by Military Police. Contractor employees may be denied entry to the Installation by Military Police if it is determined that such entry may be contrary to good order, discipline, or the security of the Installation.

1.12 PRESERVATION OF HISTORICAL, ARCHEOLOGICAL AND CULTURAL RESOURCES (1985 JAN OCE):

If, during construction activities, the Contractor observes items that might have historical or archeological value, such observations shall be reported immediately to the Contracting Officer so that the appropriate authorities may be notified and a determination can be made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in the destruction of these resources and shall prevent his employees from trespassing on, removing, or otherwise damaging such resources.

1.13 SPECIAL SAFETY REQUIREMENTS:

All construction activities shall be conducted in strict compliance with the Corps of Engineers Safety and Health Requirements Manual EM 385-1-1, and Occupational Safety and Health Administration regulations, as applicable. The manual is available on line at: <http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>

1.13.1 In addition to Safety and Health Requirements Manual EM 385-1-1, and all applicable OSHA standards, the Contractor shall comply with the requirements listed below. Paragraph numbers refer to EM 385-1-1 or are added thereto.

(a) Paragraph 01.A.12: Add new paragraph: Safety Engineer (1985 JAN OCE) (DAM 52.236/103):

(1) The Contractor shall employ at the project site to cover all hours of work at least one Safety and Occupational Health person to manage the Contractor's accident program. Duties which are not germane to the safety program shall not be assigned to the Safety and Health person(s). The principal safety person shall report to and work directly for the Contractor's on-site top manager, higher level official, or corporate safety office. The Safety and Health person(s) shall have the authority to take immediate steps to correct unsafe or unhealthful conditions. The presence of a Safety and Health person will not abrogate safety responsibilities of other personnel.

(2) Qualifications for Safety and Health person(s).

(A) Shall have a degree in engineering or safety in at least a four-year program from an accredited school; or

(B) Shall have legal registration as a Professional Engineer or a Certified Safety Professional and, in addition, shall have been engaged in safety and occupational health for at least one (1) year of experience, no time being credited to this one (1) year unless at least fifty (50) percent of the time each year was devoted to safety and occupational health; or

(C) Shall have a degree other than that specified in (A) above and, in addition, shall have been engaged in safety and occupational health for at least three (3) years' no time being credited to these three (3) years unless fifty (50) percent of the time each year was devoted to safety and occupational health; or

(D) In lieu of a degree, shall have been engaged in safety and occupational health for at least five (5) years, no time being credited to these (5) years unless at least fifty (50) percent of the time each year was devoted to safety and occupational health;

(E) First aid work is not a creditable experience.

(3) The name and qualifications of the nominated safety person(s) shall be furnished to the Contracting Officer for acceptability and a functional description of duties shall be provided prior to the pre-work conference.

(b) Paragraph 01.D.02, revise as follows:

(1) Replace paragraph 01.D.02c with the following:

"c. Property damage in excess of \$2,000.00

(2) Add new paragraph d as follows:

"An injury resulting in a lost workday, not including the day of injury."

1.14 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15 31 OCT 89)

This Paragraph specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the CONTRACT CLAUSE entitled "Default (Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

1.14.1 The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

1.14.2 The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

1.14.3 The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY WORK DAYS BASED ON (5) DAY WORK WEEK

<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
9	8	8	4	2	3	1	2	4	7	10	10

1.14.4 Upon acknowledgment of the notice to proceed (NTP) and continuing throughout the contract, the contractor will record on the daily QCQ report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delays must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day.

1.14.5 The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph 1.15.3, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled " Default (Fixed Price Construction)".

1.15 COMPLIANCE WITH DAVIS-BACON ACT

1.15.1 Contractor POC

Within 14 days after award of the contract, the Contractor shall designate a point of contact (POC) within their organization who will be responsible for the Davis-Bacon Act Labor Program for the Contractor and all subcontractors under this contract as required by the Contract Clauses and FAR 52.222.

1.15.2 Responsibilities

The designated Contractor POC shall be responsible for Davis-Bacon Act Labor Program activities including, but not limited to:

- Documentation and record keeping
- Submittal and accuracy of certified payrolls
- Submittal of required labor forms including requests for additional classifications and rates, Statements and Acknowledgement, etc.
- Posting of the wage determination, approved additional classifications and rates, labor and EEO posters
- Coordination with the Contracting Officer's Labor Program POC

Prior to submittal to the Government, payrolls shall be reviewed for compliance to all applicable labor standards, to include, but not be limited to the following items: correct wage rates, correct overtime classification and pay, misclassification of workers for work actually performed, apprentice to journeyman ratios, and registration of apprentice. Corrective actions shall be taken as necessary to ensure Contractor compliance with applicable contract and FAR clauses.

1.15.3 Certification

The Contractor POC shall provide a signed certification stating the following: "I certify that the submitted items being forwarded have been reviewed in detail and are correct and in strict conformance with the Labor Standards of the contract except as otherwise stated."

PARTS 2 AND 3 NOT USED

END OF SECTION

SECTION 01005

SITE SPECIFIC SUPPLEMENTARY REQUIREMENTS

1. CONDUCT OF WORK

1.1 COORDINATION AND ACCESS TO SITE

1.1.1 Coordination with using agencies shall be made through the Contracting Officer to assist the Contractor in completing the work with a minimum of interference and inconvenience.

1.1.2 Vehicle Access:

1.1.2.1 All Contractor-owned and privately-owned vehicles require an access pass/vehicle decal. This pass is obtained from the Fort Lewis Vehicle Registrar, Building 2140 (Waller Hall) by showing proof of insurance; the vehicle registration; Washington State driver's license; and a letter with original signature of prime Contractor or his superintendent stating the contract name and number, the contract period for which the pass is required, and the employee's name. See Paragraph IDENTIFICATION OF EMPLOYEES AND MILITARY REGULATIONS in SECTION 01001 for specific requirements.

1.1.2.2 Commercial vehicle access to Fort Lewis will be allowed at the Logistic Center Gate (Exit 123 from I-5). The Logistics Center Gate is open for inbound commercial vehicle access and inspection from 0530 hours to 2000 hours, Monday through Friday. **All commercial vehicles will be searched.** Drivers should anticipate delays.

1.1.2.3 If the commercial vehicle is a cement concrete truck carrying a load for delivery, carrying a load of hot asphalt concrete for delivery, or a garbage or refuse collection truck, the driver shall notify the gate guard as soon as possible and request that the vehicle be given priority for being searched; however, the Government does not guarantee that the vehicle will be given priority.

1.1.2.4 Large vehicles (needing greater than 12'-5" clearance) will require a time-stamped "searched" label to gain access to North Fort Lewis. "Searched" labels will be issued at the Logistic Center Gate. Drivers of such vehicles needing access to North Fort Lewis must declare that their vehicle is over 12'-5" in height and that they will require access to North Fort Lewis to receive a briefing on proper procedures and a "searched" label.

1.1.2.5 Commercial vehicles less than 12'-5" in height shall access North Fort Lewis **only** via the Pendleton Avenue Overpass once they are cleared through the Logistic Center Gate.

1.1.2.6 Procedures for commercial vehicle access to Fort Lewis are subject to change without prior notice.

1.1.3 When keys are required for access to facilities on this contract, they shall be obtained through the Contracting Officer.

1.1.3.1 The Contractor shall be responsible for Government-owned keys issued for access to facilities or areas pertinent to this contract.

1.1.3.2 Upon completion of the work in an area, or upon request of the Contracting Officer, the key or keys relevant to the completed areas shall be returned.

1.1.3.3 Should the Contractor lose a key:

a. the Contracting Officer shall be notified, in writing, within three (3) working days after the loss is discovered and

b. should the key not be found before final acceptance, the final contract payment shall be reduced by \$100 for each key not returned.

1.1.4 Work hours in the construction area will be restricted to 7:30 a.m. to 4 p.m. daily, Monday through Friday, excluding Federal holidays. Work hours other than as specified above shall be coordinated with and approved by the Contracting Officer.

1.1.5 Contractor's workmen shall have on either a uniform with the firm name and the workman's last name or shall have a badge pinned on with both the firm name and the workman's photograph and full name.

1.2 UTILITY OUTAGES

Contractor shall coordinate utility outages with the Contracting Officer at least 7 days in advance. Outages shall be kept to a minimum and any one outage shall not last more than 2 hours.

1.3 PROTECTION OF GOVERNMENT PROPERTY

In addition to requirements of the CONTRACT CLAUSES, Contractor shall protect all Government property within the buildings in which he is working, except for such property as is required to be demolished. Property which is to be demolished shall be protected until its scheduled demolition time. Protection shall include, but not be limited to, protection from construction generated dust, debris, water, and vibration.

END OF SECTION

SECTION 01025

PAYMENT

PART 1 GENERAL

1.1 GENERAL

The contract price for each item shall constitute full compensation for furnishing all plant, labor, materials, appurtenances, and incidentals and performing all operations necessary to design, construct and complete the items in accordance with the contract documents. Payment for each item shall be considered as full compensation, notwithstanding that minor features may not be mentioned therein. Work paid for under one item will not be paid for under any other item. No separate payment will be made for the work, services, or operations required by the Contractor, as specified in DIVISION 1, GENERAL REQUIREMENTS, to complete the project in accordance with the contract documents; all costs thereof shall be considered as incidental to the work.

1.2 PROGRESS PAYMENT INVOICE

Requests for payment shall be submitted in accordance with Federal Acquisition Regulations (FAR) Subpart 32.9, entitled "PROMPT PAYMENT", and Paragraphs 52.232-5 and 52.232-27, entitled "Payments Under Fixed-Price Construction Contracts", and "Prompt Payment for Construction Contracts", respectively. In addition each request shall be submitted in the number of copies and to the designated billing office as shown in the Contract.

1.2.1 When submitting payment requests, the Contractor shall complete Blocks 1 through 12 of the "PROGRESS PAYMENT INVOICE" Form as directed by the Contracting Officer. (A sample form is attached at the end of this Technical Specification Section.) The completed form shall then become the cover document to which all other support data shall be attached.

1.2.2 One additional copy of the entire request for payment, to include the "PROGRESS PAYMENT INVOICE" cover document, shall be forwarded to a separate address as designated by the Contracting Officer.

1.2.3 The Contractor shall submit with each pay request, a list of subcontractors that have worked during that pay period. The listing shall be broken down into weeks, identifying each subcontractor that has worked during a particular week, and indicate the total number of employees that have worked on site for each subcontractor for each week. The prime Contractor shall also indicate the total number of employees for its on site staff for each week.

PARTS 2 and 3 NOT USED

PROGRESS PAYMENT INVOICE

See Federal Acquisition Regulations (FAR) 32.900, 52.232-5, & 52.232-27

1. PROJECT AND LOCATION	2. DATE
3. CONTRACTOR NAME AND ADDRESS (Must be the same as in the Contract)	4. CONTRACT NO. _____
	5. INVOICE NO. _____
6. DESCRIPTION OF WORK	7. PERIOD OF PERFORMANCE From: To:
8. DISCOUNT TERMS	
9. OFFICIAL TO WHOM PAYMENT IS TO BE FORWARDED Name: Title: Phone: () -	10. OFFICIAL TO BE NOTIFIED OF DEFECTIVE INVOICE Name: Title: Phone () -
11. CERTIFICATION: I hereby certify, to the best of my knowledge and belief, that (1) The amounts requested are only for the performance in accordance with the specifications, terms, and conditions of this contract; (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of Chapter 39 of Title 31, United States Code; and (3) This request for progress payment does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.	
_____ (Signature) (Title) (Date)	
12. OTHER INFORMATION OR DOCUMENTATION required by Contract. Provide two (2) copies of each (check and attach if applicable): <input type="checkbox"/> Updated Progress Chart/Schedule <input type="checkbox"/> Progress Narrative <input type="checkbox"/> Certified Payrolls (submitted weekly) <input type="checkbox"/> Safety Exposure Report <input type="checkbox"/> Updated Submittal Register <input type="checkbox"/> Progress Photos <input type="checkbox"/> Subcontractor/Employee Listings	(FOR GOVERNMENT USE ONLY) Retainage: ____% Amt.: \$_____ Withholdings: \$_____ Reason: _____ _____ Following items are current: As-Builts _____ Yes _____ No O & M Manuals _____ Yes _____ No 1354 Data _____ Yes _____ No Submittal Register _____ Yes _____ No

END OF SECTION

SECTION 01035

MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 PROPOSED PROJECT MODIFICATIONS:

Price proposals for proposed modifications shall be submitted in accordance with the requirements of the Contract Clause MODIFICATION PROPOSALS - PRICE BREAKDOWNS. If change order work impacts or delays other unchanged contract work, the costs of such impacts or delays shall be included in the proposals and separately identified. Additional instructions for submitting price proposals can be found in NPSP-415-1-1, INSTRUCTION AND INFORMATION FOR CONTRACTORS, a copy of which will be furnished to the Contractor at the Preconstruction Conference. For information applicable to equipment rates used in contract modifications, refer to 00800 - SPECIAL CLAUSES, clause "EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE".

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01312

QUALITY CONTROL SYSTEM (QCS)

1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01320, PROJECT SCHEDULE, Section 01330, SUBMITTAL PROCEDURES, and Section 01451, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on (3-1/2 inch) high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

Hardware

- IBM-compatible PC with 200 MHz Pentium or higher processor
- 32+ MB RAM
- 4 GB hard drive disk space for sole use by the QCS system
- 3 1/2 inch high-density floppy drive
- Compact disk (CD) Reader
- Color monitor
- Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.
- Connection to the Internet, minimum 28 BPS

Software

- MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)
- Word Processing software compatible with MS Word 97 or newer
- Internet browser
- The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.
- Electronic mail (E-mail) compatible with MS Outlook

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.4.2 Contractor Quality Control(CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.6.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.6.1.5 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.6.1.7 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.6.2 Finances

1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be

summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

The Contractor will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal

transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", or Section 01320, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320, PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

END OF SECTION

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SECTION 01320
PROJECT SCHEDULE

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having this designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTALS:

SD-07 Schedules

G Preliminary project schedule, two (2) copies.

G initial project schedule, two (2) copies
Activity No. Sort
Predecessor/successor listing
Cost Schedule
Floppy Disk with schedule data in Standard Data Exchange Format (SDEF).
Activity Code Dictionary.

Periodic schedules updates, monthly updates two (2) copies.
Floppy Disks with schedule data in Standard Data Exchange Format (SDEF).
Narrative
Activity No. Sort
Cost Schedule
Cash Flow Report (S-Curve)

SD-08 Statements

Qualifications; G .

Documentation showing qualifications of personnel preparing schedule reports.

1.2 QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports. This person shall have previously created and reviewed computerized schedules. Qualifications of this individual shall be submitted to the Contracting Officer for review with the Preliminary Project Schedule submission.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS a Project Schedule as described below shall be prepared. The scheduling of construction shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Subcontractors and suppliers working on the project should also contribute in developing and maintaining an accurate Project Schedule. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

3.2 BASIS FOR PAYMENT

The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule or scheduling personnel shall result in an inability of the Contracting Officer to evaluate Contractor progress for the purposes of payment. Failure of the Contractor to provide all information, as specified below, shall result in the disapproval of the entire Project Schedule submission and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes. In the case where Project Schedule revisions have been directed by the Contracting Officer and those revisions have not been included in the Project Schedule, then the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

3.3 PROJECT SCHEDULE

The computer software system utilized by the Contractor to produce the Project Schedule shall be capable of providing all requirements of this specification including the SDEF (Standard Data Exchange Format). Failure of the Contractor to meet the requirements of this specification shall result in the disapproval of the schedule. Manual methods used to produce any required information shall require approval by the Contracting Officer.

3.3.1 Use of the Critical Path Method

The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project Schedule in Precedence Diagram Method (PDM)

3.3.2 Level of Detail Required

With the exception of the initial and preliminary schedule submission, the Project Schedule shall include an appropriate level of detail. Failure to develop or update the Project Schedule or provide data to the Contracting Officer at the appropriate level of detail, as specified by the Contracting Officer, shall result in the disapproval of the schedule. The Contracting Officer will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the Project Schedule.

3.3.2.1 Activity Durations

Contractor submissions shall be required to follow the direction of the Contracting Officer regarding reasonable activity durations. Reasonable durations are those that allow the progress of activities to be accurately determined between payment periods. A rule of thumb, that the Contractor should use, is that less than 2 percent of all non-procurement activities' Original Durations shall be greater than 20 days.

3.3.2.2 Procurement Activities

Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over 90 days. Examples of procurement process activities include, but are not limited to: submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing.

3.3.2.3 Government Activities

Government and other agencies activities that could impact progress shall be shown. These activities include, but are not limited to: approvals, inspections, utility tie-in, Government Furnished Equipment (GFE) and notice to proceed for phasing requirements.

3.3.2.4 Responsibility

All activities shall be identified in the project schedule by the party responsible to perform the work. Responsibility includes, but is not limited to, the subcontracting firm, (at the lowest tier), Contractor work force, or Government agency performing a given task. Activities shall not belong to more than one responsible party. The responsible party for each activity shall be identified by the Responsibility Code.

3.3.2.5 Work Areas

All activities shall be identified in the project schedule by the work area in which the activity occurs. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the Work Area Code.

3.3.2.6 Modification or Claim Number

Any activity that is added or changed by contract modification or used to justify claimed time shall be identified by a mod or claim code that changed the activity. Activities shall not belong to more than one modification or claim item. The modification or claim number of each activity shall be identified by the Mod or Claim Number. Whenever possible, changes shall be added to the schedule by adding new activities. Existing activities shall not normally be changed to reflect modifications.

3.3.2.7 Bid Item

All activities shall be identified in the project schedule by the Bid Item to which the activity belongs. An activity shall not contain work in more than one bid item. The bid item for each appropriate activity shall be identified by the Bid Item Code.

3.3.2.8 Phase of Work

All activities shall be identified in project schedule by phases of work in which the activity occurs. Activities shall not contain work in more than one phase of work. The project phase of each activity shall be by the unique Phase of Work Code.

3.3.2.9 Category of Work

All Activities shall be identified in the project schedule according to the category of work which best describes the activity. Category of work refers, but is not limited to, to the procurement chain of activities including such items as submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing. The category of work for each activity shall be identified by the Category of Work Code.

3.3.2.10 Feature of Work

All activities shall be identified in the project schedule according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to a work breakdown structure for the project. The feature of work for each activity shall be identified by the Feature of Work Code.

3.3.2.11 Critical Activities

The following activities shall be listed as separate line activities on a Contractor's project schedule:

- Submission and approval of mechanical/electric layout drawings
- Submission and approval of O&M manuals
- Submission and approval of as-built drawings
- Submission and approval of 1354 data and installed equipment lists
- Submission and approval of testing and air balance (TAB) firm
- Submission of TAB specialist design review report
- Submission and approval of fire protection specialist
- Submission and approval of testing and balancing and HVAC commissioning plans and data
- Air and water balance dates
- HVAC commissioning dates
- Controls testing plan
- Controls testing
- Performance Verification testing
- Other systems testing, if required
- Prefinal inspection
- Correction of punchlist from prefinal inspection
- Final inspection

3.3.2.12 Testing and Commissioning Sub-network

The Contractor shall create a separate sub-network related to testing and commissioning mechanical systems. As a minimum, the sub-network shall contain the information and activities as shown on Figures 1 and 2 attached to the end of this section. Failure to furnish this

separate sub-network within the same time frame required for the Initial Project Schedule submission (within 40 calendar days of the contract NTP) shall be cause for the Government to hold retainage up to the maximum allowed by contract, each payment period, until the sub-network is received, reviewed and approved.

3.3.3 Scheduled Project Completion

The schedule interval shall extend from notice-to-proceed to the contract completion date.

3.3.3.1 Project Start Date

The schedule shall start no earlier than the date that the Notice to Proceed (NTP) was acknowledged. The Contractor shall include as the first activity in the project schedule an activity called "Start Project". The "Start Project" activity shall have: a "ES" constraint, a constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.3.3.2 Constraint of Last Activity

Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float on the critical path. The Contractor shall include as the last activity in the project schedule an activity call "End Project". The "End Project" activity shall have: a "LF" constraint, a constraint date equal to the completion date for the project, and a zero day duration.

3.3.3.3 Early Project Completion

In the event the project schedule shows completion of the project prior to the contract completion date, the Contractor shall identify those activities that have been accelerated and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. Contractor shall specifically address each of the activities noted at every project schedule update period to assist the Contracting Officer to evaluate the Contractor's ability to actually complete prior to the contract period.

3.3.4 Interim Completion Dates

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

3.3.4.1 Start Phase

The Contractor shall include as the first activity for a project phase an activity called "Start Phase X" where "X" refers to the phase of work. "Start Phase X" activity shall have an "ES" constraint date equal to the date on which the NTP was acknowledged, and a zero day duration.

3.3.4.2 End Phase

The Contractor shall include as the last activity in a project phase an activity called "End Phase X" where "X" refers to the phase of work. The "End Phase X" activity shall have an "LF" constraint date equal to the completion date for the project, and a zero day duration.

3.3.4.3 Phase X

The Contractor shall include a hammock type activity for each project phase called "Phase X" where "X" refers to the phase of work. The "Phase X" activity shall be logically tied to the earliest and latest activities in the phase.

3.3.5 Default Progress Data Disallowed

Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the Actual Start and Finish dates on the Daily Quality Control report for every in progress or completed activity and ensure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's schedule and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes.

3.3.6 Out-of-Sequence Progress

Activities that have posted progress without predecessors being completed (Out-of-Sequence Progress) shall be allowed only by the case-by-case approval of the Contracting Officer. The Contracting Officer may direct that changes in schedule logic be made to correct any or all out-of-sequence work.

3.3.7 Negative Lags

Lag durations contained in the project schedule shall not have a negative value.

3.4 PROJECT SCHEDULE SUBMISSIONS

The Contractor shall provide the submissions as described below. The data disk, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.

3.4.1 Preliminary Project Schedule Submission

The Preliminary Project Schedule, defining the Contractor's planned operations for the first 60 calendar days shall be submitted for approval within 10 calendar days after Notice to Proceed is acknowledged. The approved preliminary schedule shall be used for payment purposes not to exceed 60 calendar days after Notice to Proceed.

3.4.2 Initial Project Schedule Submission

The Initial Project Schedule shall be submitted for approval within 40 calendar days after Notice to Proceed. The schedule shall provide a reasonable sequence of activities which represent work through the entire project and shall be at a reasonable level of detail.

3.4.3 Periodic Schedule Updates

Based on the result of progress meetings, specified in "Periodic Progress Meetings," the Contractor shall submit periodic schedule updates. These submissions shall enable the

Contracting Officer or to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgment of the Contracting Officer or authorized representative, is necessary for verifying the contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made.

3.4.4 Standard Activity Coding Dictionary

The Contractor shall submit, with the Initial Project Schedule, a coding scheme that shall be used throughout the project for all activity codes contained in the schedule. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. For example, a Responsibility Code Value, "ELE", may be identified as "Electrical Subcontractor." Activity code values shall represent the same information throughout the duration of the contract. Once approved with the Initial Project Schedule submission, changes to the activity coding scheme must be approved by the Contracting Officer.

3.5 SUBMISSION REQUIREMENTS

The as noted in paragraph 1.1 items shall be submitted by the Contractor for the preliminary submission, initial submission, and every periodic project schedule update throughout the life of the project:

3.5.1 Data Disks

Two data disks containing the project schedule shall be provided. Data on the disks adhere to the SDEF format specified in ER 1-1-11, Appendix A.

3.5.1.1 File Medium

Required data shall be submitted on 89 mm (3.5 inch) disks, formatted to hold 1.44 MB of data.

3.5.1.2 Disk Label

A permanent exterior label shall be affixed to each disk submitted. The label shall indicate the type of schedule (Initial, Update, or Change), full contract number, project name, project location, data date, name and telephone number or person responsible for the schedule, and the version used to prepare the C.P.M.

3.5.1.3 File Name

Each file submitted shall have a name related to either the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will ensure that the names of the files submitted are unique. The Contractor shall submit the file naming convention to the Contracting Officer for approval.

3.5.2 Narrative Report

A Narrative Report shall be provided with each update of the project schedule. This report shall be provided as the basis of the Contractor's progress payment request. The Narrative Report shall include: a description of activities along the critical path, a description of current and

anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken or required to be taken. The narrative report is expected to relay to the Government, the Contractor's thorough analysis of the schedule output and its plans to compensate for any problems, either current or potential, which are revealed through that analysis.

3.5.3 Approved Changes Verification

Only project schedule changes that have been previously approved by the Contracting Officer shall be included in the schedule submission. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

3.5.4 Schedule Reports

The format for each activity for the schedule reports listed below shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float. Actual Start and Actual Finish Dates shall be printed for those activities in-progress or completed.

3.5.4.1 Activity Report

A list of all activities sorted according to activity number. For completed activities the Actual Start Date shall be used as the secondary sort.

3.5.4.2 Logic Report

A list of Preceding and Succeeding activities for every activity in ascending order by activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort. Preceding and succeeding activities shall include all information listed above in paragraph Schedule Reports. A blank line shall be left between each activity grouping.

3.5.4.3 Total Float Report

A list of all activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates. Completed activities shall not be shown on this report.

3.5.4.4 Earnings Report

A compilation of the Contractor's Total Earnings on the project from the Notice to Proceed until the most recent Monthly Progress Meeting. This report shall reflect the Earnings of specific activities based on the agreements made in the field and approved between the Contractor and Contracting Officer at the most recent Monthly Progress Meeting. Provided that the Contractor has provided a complete schedule update, this report shall serve as the basis of determining Contractor Payment. Activities shall be grouped by bid item and sorted by activity numbers. This report shall: sum all activities in a bid item and provide a bid item percent; complete and sum all bid items to provide a total project percent complete. The printed report shall contain, for each activity: Activity Number, Activity Description, Original Budgeted Amount, Total Quantity, Quantity to Date, Percent Complete (based on cost), Earnings to Date.

3.5.4.5 Cash Flow Report

A report showing scheduled cost of work-in-place by week (tabular report) and a cash flow curve by week (S-curve plot), both based on early dates.

3.5.5 Network Diagram

The time scaled network diagram shall be required on the initial schedule submission and on quarterly update submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.5.1 Continuous Flow

Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity or event number, description, duration, and estimated earned value shall be shown on the diagram.

3.5.5.2 Project Milestone Dates

Dates shall be shown on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.5.3 Critical Path

The critical path shall be clearly shown.

3.5.5.4 Banding

Activities shall be grouped to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

3.5.5.5 S-Curves

Earnings curves shall be provided showing projected early and late earnings and earnings to date.

3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly on-site meeting or other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor will describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project. The Contracting Officer will approve activity progress, proposed revisions, and adjustments as appropriate.

3.6.1 Meeting Attendance

The Contractor's Project Manager and Scheduler shall attend the regular progress meeting.

3.6.2 Update Submission Following Progress Meeting

A complete update of the project schedule containing all approved progress, revisions, and adjustments, based on the regular progress meeting, shall be submitted not later than 4 working days after the monthly progress meeting.

3.6.3 Progress Meeting Contents

Update information, including Actual Start Dates, Actual Finish Dates, Remaining Durations, and Cost to Date shall be subject to the approval of the Contracting Officer. The following minimum set of items which the Contractor shall address, on an activity by activity basis, during each progress meeting.

3.6.3.1 Start and Finish Dates

The Actual Start and Actual Finish dates for each activity currently in-progress or completed activities.

3.6.3.2 Time Completion

The estimated Remaining Duration for each activity in-progress. Time-based progress calculations must be based on Remaining Duration for each activity.

3.6.3.3 Cost Completion

The earnings for each activity started. Payment shall be based on earnings for each in-progress or completed activity. Payment for individual activities shall not be made for work that contains quality defects. A portion of the overall project amount may be retained based on delays of activities.

3.6.3.4 Logic Changes

All logic changes pertaining to Notice to Proceed on change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, lag durations, and other changes that have been made pursuant to contract provisions shall be specifically identified and discussed.

3.6.3.5 Other Changes

Other changes required due to delays in completion of any activity or group of activities are those delays beyond the Contractors control such as strikes and unusual weather. Also included are delays encountered due to submittals, Government Activities, deliveries or work stoppage which makes re-planning the work necessary, and when the schedule does not represent the actual prosecution and progress of the work.

3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor requests an extension of the contract completion date, he shall furnish such justification, project schedule data and supporting evidence as the Contracting Officer may deem necessary for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof of delay,

based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is obligatory to any approvals.

3.7.1 Justification of Delay

The project schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved with this request. The Contracting Officer's determination as to the number of allowable days of contract extension, shall be based upon the project schedule updates in effect for the time period in question and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, shall not be a cause for a time extension to the contract completion date.

3.7.2 Submission Requirements

The Contractor shall submit a justification for each request for a change in the contract completion date of under two weeks based upon the most recent schedule update at the time of the Notice to Proceed or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

- a. A list of affected activities, with their associated project schedule activity number.
- b. A brief explanation of the causes of the change.
- c. An analysis of the overall impact of the changes proposed.
- d. A sub-network of the affected area.

Activities impacted in each justification for change shall be identified by a unique activity code contained in the required data file.

3.7.3 Additional Submission Requirements

For any request for time extension for over 2 weeks, the Contracting Officer may request an interim update with revised activities for a specific change request. The Contractor shall provide this disk within 4 days of the Contracting Officer's request.

3.8 DIRECTED CHANGES

If Notice to Proceed (NTP) is issued for changes prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the Contracting Officer within 2 weeks of the NTP being issued. The proposed revisions to the schedule will be approved by the Contracting Officer prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until the Contractor submits revisions, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer, then the Contractor shall advise the Contracting Officer within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor will continue to update their schedule with the Contracting Officer's revisions until a mutual agreement in the revisions may be made. If the Contractor fails to submit alternative revisions within 2 weeks of

receipt of the Contracting Officer's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.9 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

3.10 NAS DATA

The Contractor shall provide the Government with the means to electronically transfer all required NAS data into the Resident Management System (RMS) program using the Standard Data Exchange Format (SDEF). The Contractor may use network analysis software different from that used by the Contracting Officer in the Resident Office, however, the Contractor shall also furnish the following:

NAS data that complies with the Standard Data Exchange Format (SDEF). This is a standard ASCII format for exchanging scheduling data and is compatible with our resident management system. Many software developers provide the capability to convert and export schedule data to the SDEF at no additional cost. The SDEF specifications are in a separate publication, available from the Internet WWW.CECER.AARMY.MIL/PL/SDEF.

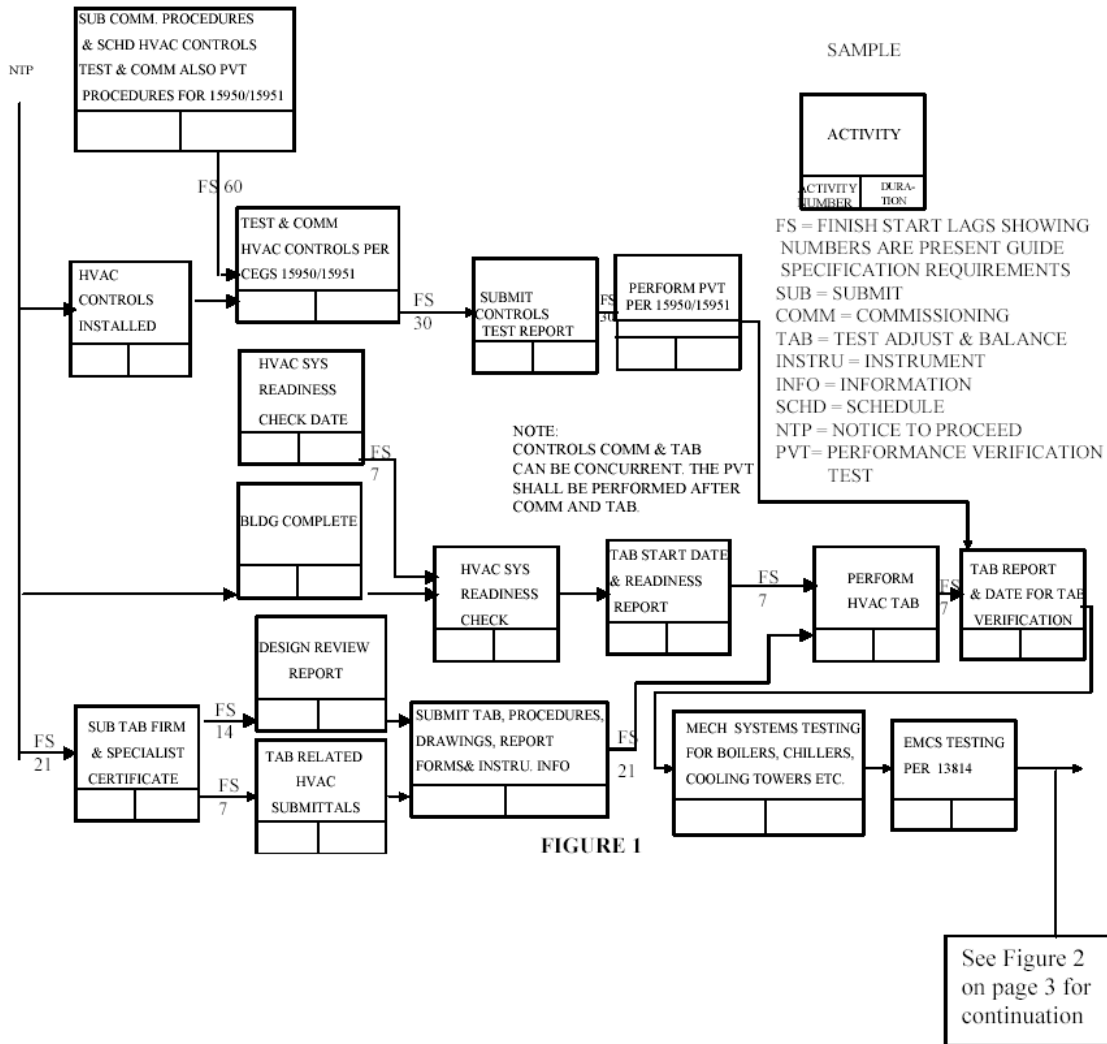


FIGURE 1

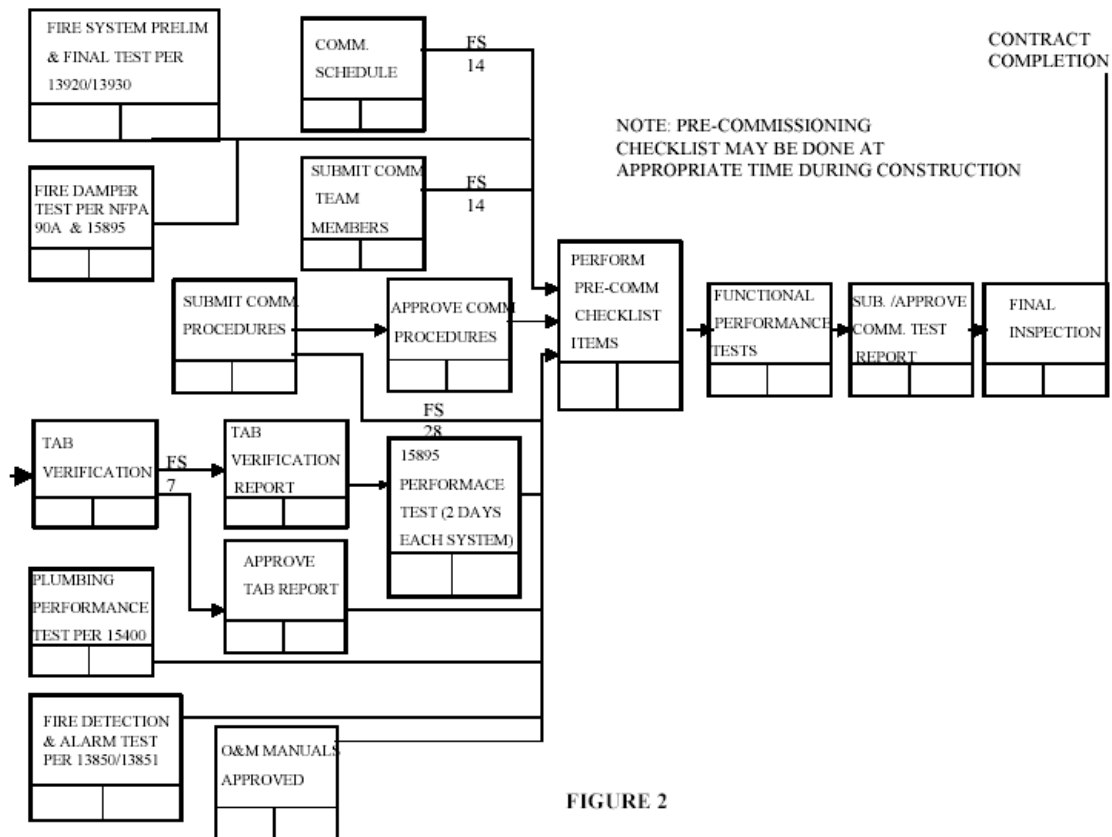


FIGURE 2

END OF SECTION

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

INTRODUCTION Design submittal activities shall follow the guide lines presented in Section 00810 Design-Build Contract Procedures. All correspondence shall follow the guidance of Section 01001 Supplementary Requirements, paragraph 1.3 Correspondence. The following guidance is to be followed for all construction related submittals, all submittals required in Division 1 specifications and all submittals identified in Section 00860 Statement of Work as requiring Contracting Officer approval.

1.1 CONTROL AND SCHEDULING OF SUBMITTALS

1.1.1 Submittal Coordination Meeting

After the preconstruction conference and before any submittals are sent to the Contracting Officer's Representative (COR), the Contractor shall meet with the COR and develop an approved preliminary submittal register, ENG Form 4288. The contractor shall provide a suitable electronic copy for import to the RMS system prior to the submittal coordination meeting. During the meeting all required items will be identified and grouped into three categories:

- Government Approved (G)

Government approval is required for extensions of design, critical materials, variations/deviations, an "or equal" decision, equipment whose compatibility with the entire system must be checked, architectural items such as Color Charts/Patterns/Textures, and other items as designated by the COR. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," these submittals will be acted on as "shop drawings."

- For Information Only (FIO)

Submittals not requiring Government approval, but require submission, will be for information only. These are items such as Installation Procedures, Certificates of compliance, Samples, Qualifications, etc. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," these submittals will not be acted on as "shop drawings."

- For Contractor Only (KIO)

Those items that can be visually inspected by the Contractor's Quality Control Representative (CQC) on site or are provided to the Government other than with an ENG Form 4025: The items that fall into this category shall not be included on the register and shall not be submitted to the COR. For these items, the contractor shall maintain a separate method of tracking and make them available at the appropriate preparatory inspection(s).

1.1.2 Final Submittal Register

The final submittal register shall be coordinated with the progress schedule and submitted within 40 days of Notice to Proceed. In preparing the final document, adequate time (minimum of 30 days) shall be allowed for review and approval, and possible resubmittal of each item on the register.

1.1.3 Submittal Register Updates

The Contractor's quality control representative shall review the listing at least every 30 days and take appropriate action to maintain an effective system. Copies of updated or corrected listings shall be submitted to the COR at least every 30 days in the quantity specified.

1.2 SUBMITTAL TYPES

Throughout these specifications submittals may be identified with the prefix "SD" (submittal data) followed by a number (category, i.e., data, drawings, reports, etc.). This is for bookkeeping and record sorting in the system:

SD-01 Preconstruction Submittals

- Certificates of insurance.
- Surety bonds.
- List of proposed subcontractors.
- List of proposed products.
- Construction Progress Schedule.
- Submittal register.
- Schedule of values.
- Health and safety plan.
- Work plan.
- Quality control plan.
- Environmental protection plan.

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for

the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports

Daily checklists

Final acceptance test and operational test procedure

SD-07 Certificates

Statements signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications. Confined space entry permits.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by

manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

Factory test reports.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

1.3 APPROVED SUBMITTALS

The approval of submittals by the COR shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist. The Contractor, under the CQC requirements of this contract, is responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work. After submittals have been approved by the COR, no resubmittal for the purpose of substituting materials or equipment will be given consideration.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the COR and promptly furnish a corrected submittal in the format and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, written notice, as required under the Contract Clause entitled "Changes," shall be given to the COR.

1.5 PAYMENT

Separate payment will not be made for submittals, and all costs associated therein shall be included in the applicable unit prices or lump sum prices contained in the schedule. Payment will not be made for any material or equipment which does not comply with contract requirements.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

Prior to submittal, all items shall be checked and approved by the Contractor's CQC and each item of the submittal shall be stamped, signed, and dated. Each respective transmittal form (ENG Form 4025) shall be signed and dated by the CQC certifying that the accompanying submittal complies with the contract requirements. This procedure applies to all submittals. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including, but not limited to, catalog cuts, diagrams; operating charts or curves; test reports; test cylinders; samples; O&M manuals including parts lists; certifications; warranties and other such required items. Units of weights and measures used on all submittals shall be the same as the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Government-approval submittals shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. The COR may request submittals in addition to those listed when deemed necessary to adequately describe the work covered in the respective sections. The Contractor shall maintain a complete and up-to-date file of all submittals/items on site for use by both the Contractor and the Government.

3.2 SUBMITTAL REGISTER (ENG Form 4288)

An electronic copy of the submittal register - ENG Form 4288 – for Divisions 1 through 16 in a format compatible for import into RMS shall be provided by the Contractor and a hard copy shall be further developed by the Contractor prior to the submittal coordination meeting and list each item of equipment and material for which submittals are required in the Technical Specifications. (See paragraph SUBMITTALS at the beginning of each specification section.) A sample Form 4288 is attached at the end of this Section. The Contractor shall approve all items listed on the submittal register. During the submittal coordination meeting, a preliminary submittal register will be created by annotating this Form 4288. When the final submittal register is submitted for approval, the Contractor shall complete the column entitled "Item No." and all data under "Contractor Schedule Dates" and return five completed copies to the COR for approval. The Contractor shall review the list to ensure its completeness and may expand general category listings to show individual entries for each item. The numbers in column "Item No." are to be assigned sequentially starting with "1" for each specification section. DO NOT preassign transmittal numbers when preparing the submittal register. When a conflict exists between the submittal register and a submittal requirement in the technical sections, other than those submittals referenced in Paragraph 3.9: Field Test Reports, the approved submittal register shall govern. The preliminary, and then the final approved submittal register, will become the scheduling documents and will be updated monthly and used to control submittals throughout the life of the contract. Names and titles of individuals authorized by the Contractor to approve shop drawings shall be submitted to COR with the final 4288 form. Supplier or subcontractors certifications are not acceptable as meeting this requirement.

3.3 SCHEDULING

Submittals covering component items forming a system, or items that are interrelated, shall be coordinated and submitted concurrently. Certifications shall be submitted together with other pertinent information and/or drawings. Additional processing time beyond 30 days, or number of copies, may be shown by the COR on the submittal register attached in the "Remarks" column, or may be added by the COR during the coordination meeting. No delays damages or time extensions will be allowed for time lost due to the Contractor not properly scheduling and providing submittals.

3.4 TRANSMITTAL FORM (ENG Form 4025)

Transmittal Form 4025 (sample at end of this section) shall be used for submitting both Government-approval and information-only submittals in accordance with the instructions on the reverse side of the form. Transmittal numbers shall be assigned sequentially. Electronic generated 4025 forms shall be printed on carbonless paper and be a reasonable facsimile of the original 4025. If electronic forms are not used, the original 4025 forms shall be used (do not photo copy) and will be furnished by the COR. These forms shall be filled in completely prior to submittal. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.. Each submittal item shall be listed separately on the form, naming subcontractor, supplier, or manufacturer, applicable specification paragraph number(s), drawing/sheet number, pay item number, and any other information needed to identify the item, define its use, and locate it in the work. One or more 4025 forms may be used per specification section, however, DO NOT include more than one specification section per transmittal.

3.5 CROSS-REFERENCE (ENG FORM 4288/ENG FORM 4025)

To provide a cross-reference between the approved submittal register and transmittal forms, the Contractor shall record the "transmittal numbers" assigned when submitting items in column "Transmittal No." of the ENG FORM 4288. The item numbers in column "Item No." of submittal register shall correspond to the item numbers on ENG Form 4025.

3.6 SUBMITTAL PROCEDURE

3.6.1 General

Shop drawings with 4025 forms shall be submitted in the number of copies specified in subparagraphs "Government Approved Submittals" and "Information Only Submittals," or as indicated on the submittal register in the "Remarks" column. Submit a complete collated "reviewers copy" with one 4025 form and attachments (not originals). The remaining copies (4 for Government-approval, 2 for information-only) of 4025 forms and attachments shall not be collated. This would not apply to a series of drawings.

3.6.2 Approval of Submittals by the Contractor

Before submittal to the COR, the Contractor shall review and correct shop drawings prepared by subcontractors, suppliers, and itself, for completeness and compliance with plans and specifications. The Contractor shall not use red markings for correcting material to be submitted. Red markings are reserved for COR's use. Approval by the Contractor shall be indicated on each shop drawing by an approval stamp containing information as shown in this section. Submittals not conforming to the requirements of this section will be returned to the Contractor for correction and resubmittal.

3.6.3 Variations

For submittals which include proposed variations requested by the Contractor, column "h" of ENG Form 4025 shall be checked and the submittal shall be classified as G, and submitted accordingly. The Contractor shall set forth in writing the justification for any variations and annotate such variations on the transmittal form in the REMARKS block. Variations are not approved unless there is an advantage to the Government. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted variations.

3.6.4 Drawings

Each drawing shall be not larger than A1 size (841 mm wide by 594 mm high), with a title block in lower right hand corner and a 75 mm by 100 mm (3 by 4 inch) clear area adjacent. The title block shall contain the subcontractor's or fabricator's name, contract number, description of item(s), bid item number, and a revision block. Provide a blank margin of 20 mm (3/4 inch) at bottom, 50 mm (2 inches) at left, and 10 mm (1/2 inch) at top and right. Where drawings are submitted for assemblies of more than one piece of equipment or systems of components dependent on each other for compatible characteristics, complete information shall be submitted on all such related components at the same time. The Contractor shall ensure that information is complete and that sequence of drawing submittal is such that all information is available for reviewing each drawing. Drawings for all items and equipment, of special manufacture or fabrication, shall consist of complete assembly and detail drawings. All revisions after initial submittal shall be shown by number, date, and subject in revision block.

3.6.4.1 Submittals Containing Drawings Larger than A3 size, (297 mm high by 420 mm wide)

For Government-approval submittals containing drawings larger than A3 size, one copy capable of being reproduced by the Contractor (referred to below as "reproducible") and one blue line copy will be required to be submitted with five copies of the ENG Form 4025. The marked-up reproducible (and/or any review comments contained on the page-size comment sheet(s) at the Government's option) will be returned to the Contractor upon review. The Contractor shall provide three copies of blue line drawings (generated from the reviewed reproducible) to the Government within 10 days of Contractor's receipt of the reviewed reproducible. The Contractor shall not incorporate approved work into the project until the Government

has received the three blue line copies. The Contractor shall use the marked-up reproducible to make any additional copies as needed. For information-only submittals, one reproducible and two blue line copies shall be submitted with the appropriate number of copies of ENG Form 4025.

3.6.5 Printed Material

All requirements for shop drawings shall apply to catalog cuts, illustrations, printed specifications, or other data submitted, except that the 75 mm by 100 mm (3 inch by 4 inch) clear area adjacent to the title block is not mandatory. Inapplicable portions shall be marked out and applicable items such as model numbers, sizes, and accessories shall be indicated by arrow or highlighted.

3.7 SAMPLES REQUIRING LABORATORY ANALYSIS

See Section 01451 CONTRACTOR QUALITY CONTROL for procedures and address for samples requiring Government testing.

3.8 SAMPLES REQUIRING VISUAL INSPECTION

Samples requiring only physical inspection for appearance and suitability shall be coordinated with the on-site Government quality assurance representative (QAR).

3.9 FIELD TEST REPORTS

Routine tests such as soil density, concrete deliveries, repetitive pressure testing shall be delivered to the QAR with the daily Quality Control reports. See SECTION: 01451 CONTRACTOR QUALITY CONTROL.

3.10 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.11 GOVERNMENT APPROVED SUBMITTALS (G)

The Contractor shall submit 5 copies of G submittals with 5 corresponding 4025 forms. Upon completion of G submittal review, copies as specified below will be marked with an action code, dated, and returned to the Contractor. See "Drawings" above for special instructions if drawings larger than size A3 (11 inch by 17 inch) are used.

3.11.1 Processing of G Submittals

Submittals will be reviewed and processed as follows:

a. Approved as Submitted (Action Code "A"): Shop drawings which can be approved without correction will be stamped "Approved" and two copies will be returned to the Contractor. No resubmittal required.

b. Approved Except as Noted (Action Code "B"): Shop drawings which have only minor discrepancies will be annotated in red to indicate necessary corrections. Marked material will be stamped "Approved Except as Noted" and two copies returned to the Contractor for correction. No resubmittal required.

c. Approved Except as Noted (Action Code "C"): Shop drawings which are incomplete or require more than minor corrections will be annotated in red to indicate necessary corrections. Marked material

will be stamped "Approved Except as Noted - Resubmission Required" and two copies returned to the Contractor for correction. Resubmittal of only those items needing correction required.

d. Disapproved (Action Code "E"): Shop drawings which are fundamentally in error, cover wrong equipment or construction, or require extensive corrections, will be returned to the Contractor stamped "Disapproved." An explanation will be furnished on the submitted material or on ENG Form 4025 indicating reason for disapproval. Complete resubmittal required.

e. Resubmittal will not be required for shop drawings stamped "A" or "B" unless subsequent changes are made by Contractor or a contract modification. For shop drawings stamped "C" or "E," Contractor shall make corrections required, note any changes by dating the revisions to correspond with the change request date, and promptly resubmit the corrected material. Resubmittals shall be associated with the "parent" by use of sequential alpha characters (for example, resubmittal of transmittal 8 will be 8A, 8B, etc). Government costs incurred after the first resubmittal may be charged to the Contractor.

3.12 INFORMATION ONLY SUBMITTALS

The Contractor shall submit three copies of data and four copies of ENG Form 4025. Information-only submittals will not be returned. Government approval is not required on information-only submittals. These submittals will be used for information purposes. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the Contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications and will not prevent the COR from requiring removal and replacement if nonconforming material is incorporated in the work. This does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

3.12.1 Processing of Information-Only Submittals

Information-only submittals shall be submitted prior to delivery of the material or equipment to the job site. ENG Form 4025 shall be marked with the words "contractor approved - information copy only" in the REMARKS block of the form. Submittals will be monitored and spot checks made. When such checks indicate noncompliance, the Contractor will be notified by the same method used for Government-approval submittals. Resubmittal of nonconforming information-only submittals shall be reclassified Government-approval and shall be in five copies.

3.13 CONTRACTOR APPROVAL STAMP

The stamp used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR: _____

CONTRACT NUMBER _____

TRANSMITTAL NUMBER _____

ITEM NUMBER _____

SPECIFICATION SECTION _____

PARAGRAPH NUMBER _____

_____ APPROVED AS SUBMITTED

_____ APPROVED WITH CORRECTIONS AS
NOTED

SIGNATURE: _____

TITLE: _____

DATE _____

CONTRACTORS REVIEW STAMP

MAXIMUM SIZE:

3 INCHES BY 3 INCHES

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications-also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A --	Approved as submitted.	E --	Disapproved (See attached).
B --	Approved, except as noted on drawings.	F --	Receipt acknowledged.
C --	Approved, except as noted on drawings. Refer to attached sheet resubmission required.	FX --	Receipt acknowledged, does not comply as noted with contract requirements.
D --	Will be returned by separate correspondence.	G --	Other (Specify)

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

SECTION 01410

ENVIRONMENTAL PROTECTION

PART 1 GENERAL REQUIREMENTS

1.1 The contractor shall perform the work minimizing environmental pollution and damage as the result of construction operations under this contract. For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual esthetics, noise, solid waste, and erosion from stormwater, as well as pollutants.

1.2 Abbreviations and Acronyms:

BACT	Best Available Control Technology
BMP	Best Management Practice
CFR	Code of Federal Regulations
CO	Contracting Officer
COR	Contracting Officer's Representative
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
ECMD	Engineering & Contract Management Division
ECO	Environmental Compliance Officer
ENRD	Environmental and Natural Resources Division
EPA	Environmental Protection Agency
HM	Hazardous Material
HMTA	Hazardous Materials Transportation Act
HW	Hazardous Waste
HWT	Hazardous Waste Technician
HWMS	Hazardous Waste Management Section

ISCP	Installation Spill Contingency Plan
MSDS	Material Safety Data Sheets
NFPA	National Fire Protection Association
NPDES	National Pollutant Discharge Elimination System
NOI	Notice of Intent
OSHA	Occupational Safety and Health Act
PCB	Polychlorinated Biphenyls
PCS	Petroleum Contaminated Soil
PPE	Personnel Protective Equipment
PW	Public Works
PSCA	Puget Sound Clean Air Agency
RUL	Restricted Use List
SPCCP	Spill Prevention, Control and Countermeasures Plan
TPCHD	Tacoma Pierce County Health Department
WAC	Washington Administrative Code
WHPA	Well Head Protection Area
WISHA	Washington Industrial Safety and Health Act
YTC	Yakima Training Center

1.3 Protection of Environmental Resources

The environmental resources within the project boundaries and those affected outside the limits of work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the drawings and specifications.

1.4 Subcontractors

The contractor shall ensure compliance with this section by all subcontractors.

1.5 Laws and Regulations

The Contractor shall comply with all applicable Federal, State, and Local environmental, natural and cultural resources, and historic preservation laws and regulations. Specific attention is

directed to Fort Lewis Regulation No. 200-1 "Environmental Protection and Enhancement". These specifications supplement these laws and regulations.

1.6 Coordination

The Environmental and Natural Resources Division (ENRD) of PW coordinates most environmental concerns at Fort Lewis and its sub-installations. The Contractor shall make contact with them through PW, Engineering & Contract Management Division.

1.7 Submittals

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with section 01330 SUBMITTAL PROCEDURES.

The following is a summary of required submittals. Complete details and schedules are described in the rest of the section.

Environmental Protection Plan, GA

The Contractor shall submit an environmental protection plan within 15 days after receipt of the notice to proceed. Approval of the Contractor's plan will not relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures. The environmental protection plan shall include, but not be limited to, the following:

- a. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
- b. Methods for protection of features to be preserved within authorized work areas like trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological, and cultural resources.
- c. Procedures to be implemented to provide the required environmental protection, to comply with the applicable laws and regulations, and to correct pollution due to accident, natural causes, or failure to follow the procedures of the environmental protection plan.
- d. Location of the permitted solid waste disposal facility to be used.
- e. Drawings showing locations of any proposed temporary material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.
- f. Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.
- g. Plan showing the proposed activity in each portion of the work area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas.

- h. Applicable environmental training (both formal and on the job) the Contractor's personnel have received prior to the construction period.

Hazardous Materials and Hazardous Wastes, FIO

- Hazardous Materials Inventory Form (Initial and ongoing)
- Material Safety Data Sheets (MSDS)
- Hazardous Waste Profile Sheets
- Hazardous Waste Accumulation Log
- Hazardous Waste Manifest
- PCB Transformer Certification and Information

Asbestos

- Permits and any amendments, FIO
- Management Plan, GA
- Removal Summary, FIO
- Bulk Sample Results, FIO
- Air Monitoring Sample Results (Pre-abatement, area, clearance, and personnel), FIO
- Jobsite Entry Logs, FIO
- Waste Shipment Record, FIO
- Summary of Asbestos Removed and Remaining, FIO
- 90 Day Waste Storage Facility Permits (if applicable), FIO

Lead-based Paint, FIO

- Test results (Surface Sampling)
- Summary of Paint Removed and Remaining
- Air Monitoring Sample Results

Storm Water Pollution Prevention Plan, GA

The Contractor shall submit a Storm Water Pollution Prevention Plan (SWP3) 10 days prior to beginning work. The SWP3 plan must meet the requirements of the NPDES General Permit for Storm Water Discharges from Construction Activities. The plan must be prepared in accordance with good engineering practices and must include the four areas required by the General Permit: Site Description, Controls, Maintenance and Inspections. The detailed requirement list is included in the General Permit.

An information packet will be provided at the pre-construction conference to assist the contractor in meeting all requirements. Approval of the Contractor's plan will not relieve the Contractor of responsibility for adequate management of storm water.

The SWP3 is a dynamic document. The contractor must amend the storm water pollution prevention plan whenever there is a change in design, construction, operation or maintenance which has a significant effect on the discharge of pollutants to the waters of the United States.

Notice of Intent, GA

The Notice of Intent document must be submitted 10 days prior to beginning work to allow time for review of the document. The Contractors Notice of Intent document will be submitted with the Fort Lewis NOI as a co-permittee application. The entire NOI packet must be postmarked two days before you begin work on site.

Notice of Termination, GA

The contractor must submit a Notice of Termination to the PW Storm Water Program when the site no longer has any storm water discharges associated with the construction activity.

Inspection Documents, FIO

The contractor must submit a copy of the storm water inspection documents to PW Storm Water Program as the job progresses. Inspections are required every 14 days or within 24 hours of a 0.5" storm event. The documents will be retained on Fort Lewis for a period of 3 years.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 WORK AREA LIMITS

The Contractor shall confine all activities to areas defined by the design drawings and specifications. Prior to any construction, the Contractor shall mark the areas that will not be disturbed under this contract. Isolated areas within the general work area, which are to be saved and protected, shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.1.1 Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer or their representative. Temporary movement or relocation of Contractor facilities shall be made only when approved by the Contracting Officer or their representative.

3.2 MANAGEMENT OF HAZARDOUS MATERIALS AND HAZARDOUS WASTE

3.2.1 GENERAL

3.2.1.1 Definitions

- a. Hazardous material (HM): A useful product that requires special management because it has hazardous characteristics (ignitability, corrosivity, reactivity, or toxicity) that could pose dangers to human health or the environment. A HM becomes a Hazardous Waste when it can no longer be used for its intended purpose.

b. Hazardous waste (HW): A discarded material with properties that could pose dangers to human health or the environment. A HW either exhibits a hazardous characteristic (ignitability, corrosivity, reactivity, or toxicity) or is specifically listed as a HW by the EPA or by the State.

c. Material Safety Data Sheet (MSDS): A document containing information that manufacturers are required by law to provide on all products they manufacture and sell. The MSDS is useful in evaluating the product to determine if it has hazardous constituents and the type of medical treatment in case of an accident.

3.2.1.2 Hazardous Waste Management Section (HWMS)

The Contractor shall contact the HWMS at (253) 967-4786 with any questions pertaining to the storage, use, and disposal of Hazardous Materials and/or Hazardous Waste during the execution of this contract.

3.2.1.3 Restricted Use Materials

Certain chemicals are restricted from use on Fort Lewis. These chemicals are listed on the Restricted Use List (RUL). The RUL is maintained by the PW Environmental and Natural Resources Division (ENRD) and is updated semi-annually. A print out and/or an electronic copy of the entire RUL is available from ENRD, Building 1210. The Contractor shall receive authorization from the Contracting Officer or their representative prior to using any product that contains chemicals listed on the RUL. Only materials necessary for and associated with the execution of this Contract will be allowed on Government property.

3.2.1.4 Contingency Planning and Spill Response

The Contractor shall comply with the provisions of the Fort Lewis Spill Prevention, Control and Countermeasures Plan (SPCCP) and the Installation Contingency Plan (ICP). The PW ENRD maintains these plans. The Contractor shall also maintain on site a written contingency plan for HW accumulation and HM storage areas if the work associated with this contract generates HW or require storage of HM.

3.2.1.5 Transportation of HM and HW

The Contractor shall comply with all Department of Transportation (DOT) requirements associated with HM/HW, including proper container marking/labeling and vehicle placarding when transporting HM/HW on or off the installation. The standard method of hazardous waste disposal is through DRMO. When DRMO cannot receive the waste, the Contractor shall obtain Government approval prior to removal of any HW from the installation. Removal shall only be done by an authorized HW transporter having an EPA Identification Number and with the HW recorded on a Uniform Hazardous Waste Manifest (EPA Form 8700-22).

3.2.1.6 HM/HW Personnel and Training Requirements

The Contractor shall appoint an Environmental Compliance Officer (ECO) and a Hazardous Waste Technician (HWT) in writing, if the work associated with this contract causes the Contractor to generate, store, or handle HM/HW. The ECO/HWT shall be responsible for ensuring the requirements of this specification are met.

The Contractor shall ensure that all personnel are trained in accordance with Washington Department of Ecology regulations before being assigned to any position handling HW/HM. This training shall include, but not be limited to:

- a. Hazardous Materials Use, Storage and Disposal Training Course for ECOs/HWTs. The 8 hour course is available weekly from the Fort Lewis ENRD Hazardous Waste Management Section (HWMS) and shall be taken prior to the Contractor generating, storing, or handling HM or HW on the installation. The Contractor shall contact the HWMS to schedule attendance.
- b. First Responder Awareness Level as specified in the ISCP.
- c. Quarterly contingency plan review and rehearsal.
- d. Hazard Communication training as stated in paragraph 3.2.2.5.

The Contractor shall maintain a record of all required training, and the date conducted, for each individual requiring training and shall make this record available to the Government at all times during the execution of this contract.

3.2.2 HAZARDOUS MATERIALS

3.2.2.1 Notification

The Contractor shall provide an initial inventory and MSDS copies for all HM to be used during the execution of this contract, to the PW, Environmental & Natural Resources Division, Operations Branch and Pollution Prevention. The inventory shall include the type of HM, proposed storage location and quantity to be stored and shall be provided before bringing any HM onto the installation. The Contractor shall use the Hazardous Material Inventory form (HFL Form 953-Enclosure No. 1) or a contractor-generated form providing the same information. An electronic version of the Hazardous Material Inventory form is available from the PW ENRD in Building 1210.

3.2.2.2 Storage Facilities

Facilities shall meet all fire code requirements and provide adequate ventilation, containment, and protection from the elements. Provide warning signs, limit access to the facility, and lock it when it is unattended. Only HM shall be stored in the facility. Contractor vehicles are not considered a proper storage facility. No HM shall be stored in vehicles overnight or for any length of time.

3.2.2.3 Storage and Use

The Contractor shall store HM according to product labels and MSDS requirements. Non-compatible materials shall not be stored together. All containers shall be properly labeled as to contents and kept in good condition with tight fitting lids. Unopened containers shall be segregated from opened containers. Personal protective equipment (PPE) required by the MSDS or product label shall be available and worn by all personnel who handle the product.

3.2.2.4 Inspections, Record Keeping and Reporting

The Contractor shall perform weekly inspections of their HM storage facilities utilizing the HM Inspection Checklist (HFL Form 951-Enclosure No. 2). A current inventory of the HM storage facility shall be maintained on site and a copy forwarded to PW, Environmental & Natural Resources Division, Operations Branch, and Pollution Prevention quarterly using the Hazardous Material Inventory form. Additionally, a current MSDS for each product used or stored shall be present and on file at the site where the product is used or stored.

3.2.2.5 Hazard Communication Program

The Contractor shall have a written Hazard Communication program, which explains how personnel are informed and trained concerning HM in the workplace as required by Federal, state and Fort Lewis regulations. The written program shall be located at a hazard communication station that is accessible to all Contractor personnel and shall contain the following sections:

- a. A current inventory of HM, who is responsible for classifying a product as a HM, and how the inventory is updated.
- b. Labels and other forms of warning: This section shall describe the procedure for insuring that each HM container is clearly labeled and has the appropriate warnings. The section also states who is responsible for labeling requirements and how label information is updated.
- c. MSDS file: The location of the MSDS file, who maintains the file, and how personnel may access the file, shall be described. This section shall also describe what is done when a product is received without the MSDS and how the MSDS file is updated.
- d. Personnel training and information: This section shall describe initial and refresher training provided to personnel concerning the hazards of the HM in the workplace, the training provided, and who conducts the training.
- e. Information to non-Contractor personnel: This section shall describe how non-Contractor personnel are informed about possible hazards, where MSDS copies can be obtained, and what PPE is required in the workplace.

3.2.3 Hazardous Waste

3.2.3.1 Identification

The Contractor shall identify all HW generated during the execution of this contract. The Contractor shall completely characterize the waste stream to identify the waste constituents. Each waste stream identity shall be recorded on a Hazardous Waste Profile Sheet (HWPS) and submitted to PW, Engineering & Contract Management Division for approval prior to waste generation. Profile sheets are available from the HWMS or Contractor generated equivalent sheets may be used. The Contractor is responsible for any costs associated with laboratory analysis to verify the waste stream identity if it is not obviously evident.

3.2.3.2 Accumulation

HW Shall Be Accumulated In Waste-Compatible, Sturdy, Leak-Proof, Closed Containers That Are Department Of Transportation (Dot) Approved. The Contractor shall accumulate wastes only in Government issued HW containers.

Each HW container shall be clearly labeled with the words HAZARDOUS WASTE, a description of the waste, and the hazard associated description or label. Any container issued by the HWMS at Fort Lewis shall have a Bar-coded label that contains all necessary labeling information. This label can be obtained by contacting the HWMS.

3.2.3.3 Container Management

HW shall be handled in a manner that prevents leaks, spills, fires, and explosions. Container tops and/or bungs shall be serviceable and tightly installed (wrench tight) at all times except when adding material to the container (material should not spill if the container tips over). Containers shall be properly grounded when transferring flammable materials. Containers holding flammable liquids (flash point less than 140 degrees F) shall be grounded. Reactive and ignitable waste containers shall be stored in a manner compatible with NFPA Fire Code requirements. Incompatible wastes shall not be accumulated in the same container or in the same area.

The container accumulation area shall be 50 feet from any other occupied building, shall have overhead cover, and shall be capable of being secured. Access to the area shall be restricted to trained personnel who need to be in and use the area. The site shall be locked when not in use. The container accumulation area shall have a secondary containment system capable of collecting and holding spills and leaks. It shall be sized to hold 110 percent of the volume of the largest container. A minimum of thirty inches of aisle space shall be maintained between container rows. Container markings and labels shall be clearly visible.

3.2.3.4 Inspection, Record Keeping and Reporting

The Contractor shall inspect each accumulation point weekly, utilizing the attached Hazardous Waste Accumulation Areas checklist, (HFL Form 950-attached) to verify compliance with the above requirements. The checklist shall be available on site for inspection.

3.2.3.5 Transportation and Disposal

The Contractor shall be responsible for the transportation and disposal off site of all HW generated from the execution of this contract, unless stated otherwise in this specification.

The Contractor or his representative, who provides services that generate, prepare for shipment or transports hazardous waste or provides hazardous waste clean-up/disposal services, shall be responsible for preparing EPA Form 8700-22, Uniform Hazardous Waste Manifest, for the state to which the material is being transported. The Contractor shall comply with all manifest and record keeping and reporting requirements. Specific manifesting procedures include:

- a. The Uniform Hazardous Waste Manifest will only be signed by personnel in the HWMS at Building 1210 on Fort Lewis. At Yakima Training Center, it will be signed by the Director of Environmental and Natural Resources.

b. The Contractor shall provide a copy of the Uniform Hazardous Waste Manifest and supporting documentation (i.e., waste profile and land ban as appropriate) no less than 72 hours in advance of the proposed transporter pick up date.

c. The Contractor shall coordinate and schedule transportation pick up dates and times by contacting the HWMS at (253) 967-4786 or 3268. This will ensure qualified individuals are available for the certification/signature of the manifest and other related documentation. A waste profile (land ban when required) must accompany the manifest to verify description of material being transported.

The Contractor shall be responsible for verifying that the shipment is properly identified (profiled), packaged, marked and labeled, and not leaking. The Contractor shall apply appropriate placards to his vehicle while transporting hazardous materials/waste.

The Contractor shall insure that the transporter and disposal facility have a valid Environmental Protection Agency identification number for the applicable hazardous waste services, i.e., transportation, treatment, storage, or disposal.

The Contractor shall ensure that the transporter drivers have current DOT combination licenses. The Contractor shall ensure that the carrier has instructed and trained personnel concerning the applicable Hazardous Materials Transportation Act (HMTA) regulations relevant to their job functions.

The Contractor or his representatives shall take appropriate action (including cleanup) in the event of a release/spill. If a release/spill occurs on Fort Lewis the Contractor shall immediately notify the Fort Lewis Fire Department (Dial 911). Secondary notification shall be made to (253) 967-4786 or 3268.

The Contractor shall ensure the transporter and disposal facility has liability insurance in effect for claims arising out of death or bodily injury and property damage from hazardous material/waste transport, treatment, storage, and disposal, including vehicle liability and legal defense costs in the amount of \$1,000,000.00, as evidenced by a certificate of insurance for General, Automobile, and Environmental Liability Coverage.

3.3 POLYCHLORINATED BIPHENYLS (PCB)

3.3.1 Transformers

The Contractor shall notify PW, Engineering & Contract Management Division on the day that any electrical transformer is delivered to Fort Lewis. All transformers brought on to Fort Lewis that are fluid filled must contain less than two parts/million (ppm) PCBs and be accompanied by a letter from the manufacturer that indicates that the level of PCBs in the transformer is below two ppm. Copies of all PCB letters and nameplate information shall be provided to PW, Engineering & Contract Management Division.

3.4 RADIATION SAFETY

All aspects of the job relating to radiation safety, including transportation, use, storage or handling must be addressed by the Contractor through PW, Engineering & Contract Management Division to the Installation Radiation Safety Officer, Installation Safety Office, Building 6069, Fort Lewis, WA, phone: (253) 967-3079/6764.

3.5 DISPOSAL OF SOLID WASTE.

3.5.1 General

The Contractor shall be responsible for the disposal off site of all refuse generated in the course of performance of this contract, to include containers, transport, handling, and dumping fees. All solid wastes shall be placed in containers that are emptied on a regular schedule. The Contractor will not be permitted to deposit refuse in existing garbage cans or refuse dumpsters. No burning of refuse is allowed. All vehicle loads of waste being transported shall be adequately secured to prevent spillage.

3.5.2 Clean Fill Materials

Clean fill materials shall be disposed of on Fort Lewis at a site as directed by PW, Engineering & Contract Management Division. Clean fill shall not contain any items such as vegetative material, asphalt, concrete or metals.

3.6 PROTECTION OF LAND RESOURCES

Prior to the beginning of any construction, the Contractor shall identify the land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without special permission from the Contracting Officer or their representative. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized.

3.6.1 Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

3.6.2 Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated on the design drawings and specifications. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in cases where the constructed feature obscures borrow areas, quarries, and waste material areas, these areas shall not initially be totally cleared. Clearing of such areas shall progress in reasonably sized increments as needed to use the developed areas as approved by the Contracting Officer or their representative.

3.6.3 Disturbed Areas

The Contractor shall effectively prevent erosion and control sedimentation through approved methods including, but not limited to, the following:

- a. Retardation and control of runoff. Runoff from the construction site or from storms shall be controlled, retarded, and diverted to protected drainage courses by means of diversion ditches, benches, berms, and by any measures required by area wide plans under the Clean Water Act.
- b. Erosion and sedimentation control devices. The Contractor shall construct or install temporary and permanent erosion and sedimentation control features as indicated on the drawings. Berms, dikes, drains, sedimentation basins, grassing, and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.
- c. Sediment basins. Sediment from construction areas shall be trapped in temporary or permanent sediment basins in accordance with the drawings.

The basins shall accommodate the runoff of a local 5 year, 24 hour storm. After each storm, the basins shall be pumped dry and accumulated sediment shall be removed to maintain basin effectiveness. Overflow shall be controlled by paved weirs or by vertical overflow pipes. The collected topsoil sediment shall be reused for fill on the construction site, and/or stockpiled for use at another site. The Contractor shall institute effluent quality monitoring programs as required by State and local environmental agencies.

3.6.4 Tree Protection

The Contractor shall exercise care when excavating trenches in the vicinity of trees. Where roots are 50 mm in diameter or greater, the trench shall be excavated by hand or tunneled. When large roots are exposed, they shall be wrapped with heavy burlap for protection and to prevent drying. Trenches dug by machines adjacent to trees having roots less than 50 mm in diameter shall have the sides hand trimmed, making a clean cut of the roots. Trenches having exposed tree roots shall be backfilled within 24 hours unless adequately protected by moist burlap or canvas.

3.6.5 Trees Removed During Construction

Logs from trees removed during construction shall be decked for subsequent disposal by the Government. Decks shall be located so as not to interfere with the construction work and shall be located as directed by PW, Engineering & Contract Management Division. Logs shall be sorted by size and placed in separate decks for sawlogs and fuelwood. Trees shall be cut from the stump and limbed to the top before decking. Whenever possible logs shall be left in tree length. If trees are too large to be handled tree length, cut 40-foot logs plus 12 inches trim allowance from the butt. The minimum size for a sawlog is 6 diameter inches on the small end and 16 foot in length. All logs not suitable for sawlogs shall be placed in a fuelwood deck. The minimum size for a fuelwood log is 5 inches diameter on the large end and 8 feet in length.

3.6.6 Restoration of Landscape Damage

All landscape features (vegetation - such as trees, plants, and grass) damaged or destroyed during Contractor operations outside and within the work areas shall be restored by the Contractor to a condition similar to that which existed prior to construction activities unless

otherwise indicated on the drawings or in the specifications. All vegetation that was removed or damaged consisting of native species shall be replaced with native species. If the area had been previously landscaped with non-native species then similar plants shall be used for replacement. Landscaping shall be maintained for a minimum of 60 days after planting, to include irrigation. The Contractor shall coordinate with ENRD prior to planting any non-native species.

Trees shall be replaced in kind with a minimum 100 mm caliper nursery stock. Shrubs, vines, and ground cover shall be replaced in kind; the Contracting Officer or their representative shall approve size. All plant material shall meet specifications outlined in ANSI Z60.1 - current publication, "American Standard for Nursery Stock."

Grass areas shall be replaced in kind by sodding or seeding. Sod shall be required in all regularly maintained lawn areas.

3.7 PROTECTION OF WATER RESOURCES

3.7.1 General

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation when such application may cause contamination of the fresh water reserve. Monitoring of water areas affected by construction shall be the Contractor's responsibility. The Contractor shall monitor all water areas affected by construction activities. The Contractor shall observe all prescribed setbacks from streams and wetlands as specified in FL REG 200-1.

3.7.2 Washing and Curing Water

Stormwaters from sites less than 5 acres, directly derived from construction activities shall not be allowed to enter water areas. Stormwaters shall be collected and placed in retention ponds where suspended material can be settled out or the water evaporates to separate pollutants from the water. Analysis shall be performed and results reviewed and approved before water in retention ponds is discharged.

3.7.3 Fish and Wildlife

The Contractor shall minimize interference with, disturbance to, and damage of fish and wildlife. The Contractor, prior to beginning of construction operations, shall list species that require specific attention along with measures for their protection, including threatened, endangered and proposed species under the Endangered Species Act, and high quality or sensitive habitats designated by the Washington Natural Heritage Program. Due to the unique ecology at Ft. Lewis, both of these conditions can exist.

3.7.4 Wellhead Protection Areas

Particular care shall be taken to prevent the introduction of any contaminant to the surface in a designated Wellhead Protection Area (WPA). Certain activities that may pose a danger to groundwater resources are prohibited within WPAs.

3.7.5 Storm Water Management

3.7.5.1 Standard Permit Conditions

The Contractor must comply with all conditions of the NPDES General Permit for Storm Water Discharges from Construction Activities. NPDES Permits are required for all construction jobs of 1 acre or greater.

Once the Contractor's SWP3 and NOI are approved by PW ENRD (see 1.7 SUBMITTALS), the NOI will be submitted to the Environmental Protection Agency (EPA) with the Fort Lewis NOI as a co-applicant request to be covered under the NPDES General Permit. This packet must be mailed two days prior to work beginning on the project. The packet will be submitted by the PW ENRD Storm Water Program.

When a permit number is issued by EPA, the document will be forwarded to the project site and kept on file for the duration of the project.

Disturbances of greater than 1 acre of land requires a construction stormwater permit (CSP) from the Washington State Department of Ecology. Coordinate through the Contracting Officer to obtain this permit.

3.7.5.2 Inspections and Documentation

Qualified personnel (provided by the Contractor) shall inspect disturbed areas of the construction site at least once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches precipitation or greater. Areas inspected must include those that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site. The inspection documents must be retained as part of the SWP3 plan on site and a copy will also be forwarded to PW ENRD Storm Water Program.

A minimum of one inspection will be conducted by the Fort Lewis Storm Water Specialist to assess site compliance with the Storm Water Pollution Prevention Plan during the life of the project.

3.7.5.3 Maintenance

When required site inspections identify best management practices that are not operating effectively, maintenance shall be performed before the next anticipated storm event, or as necessary to maintain the continued effectiveness of storm water controls.

3.7.5.4 Post-Construction

For construction activities, elimination of all storm water discharges associated with the activity occurs when disturbed soils at the construction site have been finally stabilized and temporary erosion and sediment control measures have been removed, or will be removed at an appropriate time. Final stabilization means that all soil disturbing activities at the site have been completed and a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been employed.

All items requiring submittal to the PW-ENRD Storm Water Program may be delivered to the following address:

Public Works
ENRD-Storm Water
Bldg. 2012, Room 323
PO Box 339500
Fort Lewis, WA

(253) 966-1795

3.8 PROTECTION OF AIR RESOURCES

3.8.1 General

Dust particles, aerosols, and gaseous byproducts from construction activities, processing, and preparation of materials shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and state allowable limits at all times. The Contractor shall not conceal or mask the emission of an air pollutant which violates air pollution regulations or causes a detriment to the health, safety, or welfare of any person.

An air pollution source shall not emit air pollutants in such quantities and of such characteristics and duration which are likely to be injurious to human health, plant or animal life, property, or which unreasonably interfere with enjoyment of life and property.

3.8.2 Fugitive Dust

Fugitive dust created as a result of construction activities shall be controlled with the BACT such as spraying with water. Contractor vehicles shall not enter public roadways with deposits of mud, dirt, or other debris or unsecured loads. Fugitive dust shall not be emitted from air pollution generating equipment such as boilers and incinerators.

3.8.3 Painting Operations

Spray painting shall not be conducted except inside a paint booth, which utilizes a dry filter system and is approved by ENRD for use. This requirement does not apply to the use of hand-held aerosol cans, coating of buildings and similar type structures, and painting of other items which ENRD deems can not be sprayed in a paint booth.

3.8.4 Burning Natural Vegetation

All cantonment areas, housing areas and all of North Fort are designated as no burn areas. A burning permit is required for burning natural vegetation in all other areas on Fort Lewis. Burning permits may be obtained from the PW Forestry Section. A copy of the permit shall be submitted to PW, Engineering & Contract Management Division.

3.8.5 Best Available Control Technology (BACT)

The Contractor shall utilize the BACT as determined by the regulatory authority on all air pollution sources. The Contracting Officer or their representative shall be notified for resolution if this requires a change in the design.

3.9 PROTECTION OF FISH AND WILDLIFE

The Contractor shall conduct their operations in a manner that will minimize impacts on surrounding fish and wildlife. If, during construction activities, the Contractor observes any Federal or State protected species, the Contractor shall immediately contact the Contracting Officer or their representative and cease all activities at the site.

Hazardous Waste Accumulation Area Checklist

Unit/Activity: _____ Inspection Date: _____
Building Number: _____ POC: _____
Inspection Type: _____ POC Phone Number: _____

<u>Inspection Question</u>	<u>RATING</u>	<u>GO</u>	<u>NO GO</u>	<u>Comments</u>
1. Are all Hazardous Waste (HW) containers within a PW Environmental Services approved HW accumulation facility or meet facility requirements listed in FL Reg. 200-1, Appdx. F, Para. 7 a & b? CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Are only HW containers issued by PW Environmental Services used? (FL Reg 200-1, Appdx. F, Para. 6d (1)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Do HW containers have the PW Environmental Services issued bar code label and meet HW labeling requirements? (WAC 173-303-200 (1)(d) & 630 (3)) (FL Reg. 200-1, Appdx. F, Para. 6d (2)&(3)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Are containers positioned so labels can be easily read? (WAC 173-303-395 (6)) (FL Reg. 200-1, Appdx. F, Para. 6d (4)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Are containers free from leaks, excessive rust, damage or spillage/residue on the outside of the container? Are leaks into secondary containment cleaned up? (WAC 173-303-630 (2) & (7) (a)(ii)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Has any HW container exceeded its turn-in date? (WAC 173-303-200 (1)) (FL Reg. 200-1, Appdx. F, Para. 6 e (1)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Are container lids or bungs properly installed and wrench tight to prevent leakage if the container is overturned? (WAC 173-303-630 (5) (a & b)) (FL Reg. 200-1, Appdx. F, Para. 6 d (5)(a)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
8. When stored together do incompatibles, flammables, corrosives, or oxidizers have barriers to prevent mixing? (WAC 173-303-630 (9) (c)) (FL Reg. 200-1, Appdx. F, Para. 6d (6) (b)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Are HW containers, containing flammable liquids properly grounded? (WAC 173-303-630, (8) (a & b)), (FL Reg. 200-1, Appdx. F, Para. 6d (6) (c)). CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Is there a minimum thirty-inch separation between aisles of HW containers, and are rows of drums no more than two wide? (WAC 173-303-630 (8) (c)) (FL Reg. 200-1 Appdx. F, Para. 6 d (4)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
11. Is the HW separated from HM? (Visually and Physically) (FL Reg. 200-1, Appdx. F, Para. 6 c) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
12. Is there a functioning emergency alarm at the facility? (WAC 173-303-350 (3)(e)) (FL Reg. 200-1, Appdx. F, Para. 7 d (2)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
13. Is there a written, site specific, spill plan posted and are spill supplies on site? (WAC 173-303-350 (3)(e & f)) (FL Reg 200-1, Appdx. F, Para. 7 d (1)&(3)) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____
14. Are all batteries "other than lead acid" managed as universal waste? (WAC 173-303-573) CRITICAL		<input type="checkbox"/>	<input type="checkbox"/>	_____

COMMENTS:

Inspector: _____ Signature: _____

Program Management Checklist

Unit/Activity: _____ Inspection Date: _____
Building Number: _____ POC: _____
Inspection Type: _____ POC Phone Number: _____

<u>Inspection Question</u>	<u>RATING</u>	<u>GO</u>	<u>NO GO</u>	<u>Comments</u>
1. Are the unit's ECO, HWT, and HMTs appointed in writing by memorandum? (WAC 173-303-360 (1)) (FL Reg 200-1, Chap. 2, para. 2-12 c 3) (FL Reg 200-1, App E, para. 5 i (1)(E))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Are the unit ECO, HWT, HMT and appropriate HM personnel trained and certified? (Includes those who purchase, issue, receive, pick-up, inventory, and store HM.) (WAC 173-303-330 (1)) (FL Reg 200-1, Chap. 2, para. 2-12 c (1) (3)) (FL Reg 200-1, App. E, para. 5 i (1) (e))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Are quarterly inventories of hazardous material recorded, up-to date, stamped received, and kept on file for 2 years? (FL Reg 200-1, App E, para 5 i (1)(i)(j) & Tab 4)	20%	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Are quarterly hazardous material (HM) inspections conducted/documented? Is the most current and previous three quarters available? (FL Reg 200-1, App E, Tab 3, para b (2))	20%	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Are the weekly hazardous waste (HW) inspections conducted/documented? Are they kept on file for 5 years? (WAC 173-303-630 (6)) (FL Reg 200-1, App M, para. 2a (1) & App F, para 8b)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Does unit have a current Authorized Use List (AUL) or Technical Manual (TM) for requisitioning materials? (FL Reg. 200-1, App E, para. 5 i (1)(c) & Para 9 a (4))	20%	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Is there a record indicating workers have practiced the unit spill prevention and response plan on a quarterly basis? Is it kept on file for 1 year? (WAC 173-303-330) (FL Reg 200-1, App M, para 3 b)	20%	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Does the unit have a written spill contingency plan? (WAC 173-303-350 (2 & 3) (FL Reg 200-1 App E, para 17c)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Does the organization procure and use office materials with post-consumer recycled content, IAW with EPA's Comprehensive Procurement Guideline? (EO 13101)	20%	<input type="checkbox"/>	<input type="checkbox"/>	_____

COMMENTS:

Inspector: _____ Signature: _____

HFL FORM 949, 1 FEB 92

PREVIOUS EDITIONS ARE OBSOLETE

AFZHL-PWE
Proceedings for Hazardous Material Inventory

HAZARDOUS MATERIAL INVENTORY

ECOHMT: _____		OFC SYMBOL: _____		RDG #: _____							
ACCT SECT: _____		PHONE: _____		RDG DESC: _____							
UNIT/ORG: _____		EMAIL: _____		ENVD #: _____							
DOC: _____		CY QTR: 1 Jan-Mar 2 Apr-Jun 3 Jul-Sep 4 Oct-Dec		DATE: _____							
Does NOT the 15th following the last day of each quarter. To Public Works-1 NRD, Pollution Prevention-1M Section / PLE 96-1736 / T VS 96-2-903 / 1 XVII - Antiquities of Archaeology											
#	MSDS	ITEM NAME	NSN	MANUFACTURER	Unit of Measure (16 OZ CN)	Auth Qty	Begin Balance	Received (+)	Used (-)	Turn-In (-)	End Balance
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											

Comments:

HFL 9004 953, 7 JUL 00

Previous editions are obsolete

Signature

Motor Pool Inspection Checklist

Unit/Activity: _____ Inspection Date: _____
Building Number: _____ POC: _____
Inspection Type: _____ POC Phone Number: _____

Inspection Question	Rating	GO	NO GO	Comments
1. Are personnel, when handling hazardous substances, using proper protective equipment? (29 CFR 1910.132)(FL Reg 200-1, App M, para 2c(2))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Is there a spill plan, MSDSs and a current inventory of the hazardous materials (stored or used) at the Hazardous Communication Station? (29 CFR 1910.1200 (h) (ii)) (WAC 173-303-350 (2&3))(FL Reg 200-1, App M, para 2c(1)(a-c))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Are spills/leaks in maintenance bays, work areas, and vehicle parking areas promptly cleaned up? (WAC 173-303-145 (3)(a)(i)) (FL Reg 200-1, App M, para 3)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Are spill cleaning materials such as dry sweep, properly disposed of in PW Environmental Services issued containers? (WAC 173-303-145 (3) (a)(ii)) (FL Reg 200-1, App M, para 6 a (6)(b))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Are trash containers free from hazardous waste? (WAC 173-303-630 (3)) (FL Reg 200-1, App F, para 6 d (1-3))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Are parts washing machine lids closed when not in use? (PSCAA Reg 3, Article 3, Section 3.05 a (1))(FL Reg 200-1, App M, Para, 6g(1)(b))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Are maintenance and other work activities that could cause contamination avoided near storm / sewer drains? (WAC 173-303-340) (FL Reg 200-1, App M, para 6 (c-e))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Are only uncontaminated, recyclable liquids such as used oil and antifreeze placed in their proper containers and are the container lids secured when not in use? (WAC 173-303-630 (5) (a)) (FL Reg 200-1, App M, para 6a & 6e)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Are lead acid batteries stored under cover and on a pallet? (WAC 173-303-340) (FL Reg 200-1, App M, Para 6f(2)(a))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Are items that can be a source of contamination, such as engines, parts, tools, or loose equipment that are outdoors, kept under cover to avoid contaminated runoff? (WAC 173-303-340)(FL Reg 200-1, App M, para 6a(2))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
11. Is there a drip pan with an absorbent pad under each leaking vehicle? (FL Reg 200-1, App M, para 6a(5))	25%	<input type="checkbox"/>	<input type="checkbox"/>	_____
12. Have drip pans been properly maintained? (FL Reg 200-1, App M, para 6a(5)(a))	25%	<input type="checkbox"/>	<input type="checkbox"/>	_____
13. Is there any unapproved or unauthorized P2 equipment on hand? If yes, list the type of equipment, serial number, model, and manufacturer. (FL Reg 200-1, App D, para 5e)	25%	<input type="checkbox"/>	<input type="checkbox"/>	_____
14. Is the organization using recycled oil? (EO 13101 Sect. 705)	25%	<input type="checkbox"/>	<input type="checkbox"/>	_____

COMMENTS:

Inspector: _____ Signature: _____

Hazardous Materials Management Checklist

Unit/Activity: _____ Inspection Date: _____
 Building Number: _____ POC: _____
 Inspection Type: _____ POC Phone Number: _____

Inspection Question	RATING	GO	NO GO	Comments
1. Is there an HMCC label on each HM container? Or a memorandum authorizing local purchase? (EO 13148, Sec 501)(FL Reg 200-1, App E, Tab 1, Para. 2)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Is the delegation of authority form HFL 956 on file at the HMCC and up to date? (FL Reg 200-1, App E, para 5.I.(1)(b))	14%	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Is HM stored in a PW Environmental Services approved facility? (FL Reg 200-1, App E, Tab 2, para 1)	14%	<input type="checkbox"/>	<input type="checkbox"/>	_____
4. Are new (Unopened) product containers stored in an orderly manner? ("First in, first out" (FIFO) rule used, and HM storage area free of clutter and debris.) (FL Reg 200-1, App E, Tab 2, para 3c & d)	14%	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Is HM stored according to label/MSDS requirements? (Incompatible materials segregated; flammables stored away from sources of heat, ignition, flames, or sparks.) (FL Reg 200-1, App E, Tab 2, para 3g) (FL Reg 420-30, Para. 4-6 a)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Are gas cylinders properly identified, leak-tight, secured or racked, with safety caps in place, and stored under cover and away from sources of heat, flames, or sparks? (FL Reg 200-1, App E, Tab 2, para 1 a & g) (FL Reg 420-30, para. 4-6 i (2))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Are product containers serviceable? (No leaking, no excessive dents or rust, and lids tightly closed.) (FL Reg 200-1, App E, Tab 2, para. 3 f)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Is HM stored by type and quantity in accordance with the AUL? (Only authorized NSNs in stock, not more than authorized quantities, only in designated storage areas; no hidden stockpiles.) (FL Reg 200-1, App E, para 5.I.(1)(d)) (FL Reg 200-1, Tab 2, para 3&6)	14%	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. Are containers within shelf life expiration dates? (FL Reg 200-1, App E, Tab 2, para 3e)	14%	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Are new (Unopened) product containers segregated from "in-use" containers? (FL Reg 200-1, App E, Tab 2, para 3d)	14%	<input type="checkbox"/>	<input type="checkbox"/>	_____
11. Are in-use quantities appropriate to support mission requirements? (FL Reg 200-1, App E, para 5.I.(5))	14%	<input type="checkbox"/>	<input type="checkbox"/>	_____
12. Are container labels legible and do they clearly identify the name of the material in the container? (29 CFR Part 1910-1200, App E, para 4 (a)) (FL Reg 200-1, App E, Tab 2, para 2 a)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
13. Are appropriate MSDSs available for each specific HM? (Random spot check.) (29 CFR 1910.1200, App. E 4 b)(FL Reg 200-1, App M, para 2c(1)(a))	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____
14. Do opened, "in-use" containers have secondary containment? Are leaks into secondary containment cleaned up? (WAC 173-303-630 Para. 7 (a) (i)) (FL Reg 200-1, App E, Tab 2, para 3 d)	CRITICAL	<input type="checkbox"/>	<input type="checkbox"/>	_____

COMMENTS:

Inspector: _____ Signature: _____

HAZARDOUS MATERIAL INVENTORY

POC:	OFFICE CODE:		
UNIT:	PHONE:		
DODAC:	DATE:		
END FILE #	BLDG#:	UIC:	

#	MSDS	ITEM NAME	NSN	MANUFACTURER	Container Size/Type	On Hand	Received (+)	Issued (-)	Down Graded to Waste (-)	Balance
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										

Storage Location/Comments:

SECTION 01415

METRIC MEASUREMENTS

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 380 (1993) Practice for Use of the International System of Units (SI)

ASTM E 621 (1999 e1) Practice for Use of Metric (SI) Units in Building Design and Construction

1.2 GENERAL

This project includes metric units of measurements. The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960. A number of circumstances require that both metric SI units and English inch-pound (I-P) units be included in a section of the specifications. When both metric and I-P measurements are included, the section may contain measurements for products that are manufactured to I-P dimensions and then expressed in mathematically converted metric value (soft metric) or, it may contain measurements for products that are manufactured to an industry recognized rounded metric (hard metric) dimensions but are allowed to be substituted by I-P products to comply with the law. Dual measurements are also included to indicate industry and/or Government standards, test values or other controlling factors, such as the code requirements where I-P values are needed for clarity or to trace back to the referenced standards, test values or codes. For American Society for Testing and Materials (ASTM) references in the technical specifications, the Contractor shall use the metric publication, if one is available (For example: ASTM A 36, use ASTM A 36M). An acceptable substitute to hard Metric SI Concrete Masonry Units (CMU) and Recessed Lighting Fixtures (RLF) is English in-pound (soft metric) CMU and RLF. The Contractor shall be responsible for any adjustments required to accommodate these alternative English in-pound units at no additional cost to the Government.

1.3 USE OF MEASUREMENTS

Measurements shall be either in SI or I-P units as indicated, except for soft metric measurements or as otherwise authorized. The Contractor shall be responsible for all associated labor and materials when authorized to substitute one system of units for another and for the final assembly and performance of the specified work and/or products.

1.3.1 Hard Metric

A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value, i.e., where an SI value is not an exact mathematical conversion of an I-P value, such as the use of 100 mm in lieu of 4 inches. Hard metric products are required when only metric dimensions are indicated, except for Contractor's options as outlined in paragraph GENERAL

above. Hard metric measurements are often used for field data such as distance from one point to another or distance above the floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry recognized metric designation.

1.3.2 Soft Metric

a. A soft metric measurement is indicated by an SI value which is a mathematical conversion of the I-P value shown in parentheses e.g. 38.1 mm (1-1/2 inches). Soft metric measurements are used for measurements pertaining to products, test values, and other situations where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.

b. A soft metric measurement is also indicated for products that are manufactured in industry designated metric dimensions but are required by law to allow substitute I-P products. These measurements are indicated by a manufacturing hard metric product dimension followed by the substitute I-P equivalent value in parentheses e.g., 190 x 190 x 390 mm (7-5/8 x 7-5/8 x 15-5/8 inches).

1.3.3 Neutral

A neutral measurement is indicated by an identifier that has no expressed relation to either an SI or an I-P value (e.g., American Wire Gage (AWG) which indicates thickness but in itself is neither SI nor I-P).

1.4 COORDINATION

Discrepancies, such as mismatches or product unavailability, arising from use of both metric and non-metric measurements and discrepancies between the measurements in the specifications and the measurements in the drawings shall be brought to the attention of the Contracting Officer for resolution.

1.5 RELATIONSHIP TO SUBMITTALS

Submittals for Government approval or for information only shall cover the SI or I-P products actually being furnished for the project. The Contractor shall submit the required drawings and calculations in the same units used in the contract documents describing the product or requirement unless otherwise instructed or approved. The Contractor shall use ASTM E 380 and ASTM E 621 as the basis for establishing metric measurements required to be used in submittals.

END OF SECTION

SECTION 01451

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
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ASTM E 329	(2000b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
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1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

1.3 LABORATORY VALIDATION

The testing laboratory shall be validated by Corps of Engineers Material Testing Center (MTC) for all tests required by contract. See paragraph 3.7 TESTS.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed design and construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

3.2.1 General

(a) The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Design work is to begin after the predesign meeting (see Section 00810 Design-Build Contract Procedures). Construction will be permitted to begin only after acceptance of the applicable design documents (see Section 00810) and acceptance of the CQC Plan for the construction phase of the contract or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

(b) Quality Control of all architectural or engineering design shall be the responsibility of the Professional Architect or Engineer who will seal all drawings and specifications as the "Architect of Record" (see Section 00810, paragraph Architect of Record). The design quality control system shall require professional architects and engineers, other than the designers preparing the drawings and specifications to review the design documents for quality control using an established design quality review system to ensure that the design meets the requirements of the RFP. **The Contractor shall forward to the Government, as part of his design Quality Control Program, a plan for conducting this independent technical review to include a specific list of personnel who will be responsible for it. A copy of the comments resulting from this review and a certification that it has been performed shall be forwarded upon its conclusion.**

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project manager. If the project manager and project superintendent is the same person, the CQC System Manager shall report to someone higher in the Contractor's organization than the project manager.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System

Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.

- d. The method of design quality review proposed to assure that the design meets all contract intent and specific requirements.
- e. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- f. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Laboratory facilities will be validated by the Corps of Engineers Material Testing Center and approved by the Contracting Officer.
- g. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- h. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- j. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Predesign Meeting, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 5 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Design and Construction: Architect of Record

Design and Construction Quality Assurance shall be the responsibility of the Architect who will seal all drawings and specifications as the "Architect of Record" (see Section 00810, paragraph Architect of Record). He shall also be the final approval authority for all construction shop drawings and any other tests and submittals effecting the final design as well as being responsible for the review and approval of all material and equipment submittals during construction. His review and approval of construction shop drawings and material and equipment submittals shall be indicated by way of an "Architect Review Stamp" similar to the Contractor's (Quality Control Manager's) Stamp found at the end of Section 01330, Submittal Procedures. Any engineering calculations forwarded as a part of any construction shop drawing or submittal shall be stamped by either the designer or another professional engineer.

3.4.2 Construction: General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health manager shall receive direction and authority from the CQC System manager and shall serve as a member of the CQC staff. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawings submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.3 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority

to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 5 years construction experience on construction similar to this contract or a construction person with a minimum of 10 years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide one (1) additional full time quality control individual to assist the CQC System Manager in daily CQC work requirements. This individual shall have the same qualifications as the CQC Systems Manager. Personnel directly assisting the CQC Systems Manager shall not be production supervisors in the company. The Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: mechanical. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; be physically present at the construction site to perform inspection during work on their areas of responsibility, at a minimum 3 days per week; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals shall have no other duties other than quality control.

Experience Matrix		
	<u>Area</u>	<u>Qualifications</u>
	Mechanical	Graduate Mechanical Engineer with 2 years experience or person with 5 years related experience
	Electrical	Graduate Electrical Engineer with 2 years related experience or person with 5 years related experience

3.4.4 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered at AGC offices throughout the state of Washington and Oregon.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals

are in compliance with the contract requirements. When Section 15950A HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTROL SYSTEMS, 15951A DIRECT DIGITAL CONTROL FOR HVAC; 15990A TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS; or 15995A COMMISSIONING OF HVAC SYSTEMS are included in the contract, the submittals required by these sections shall be coordinated with Section 01330 SUBMITTAL PROCEDURES to ensure adequate time is allowed for each type of submittal required. All Contractor forms for submitting test results are subject to Contracting Officer approval.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the project design drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work that may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements, see Table 1 – Minimum Testing, attached at the end of this specification section. Contractor shall submit all materials test reports on forms standard to industry standards such as ACI, ASTM and AASHTO or with laboratory accreditation forms such as AALA, NIST or NVLAP. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers validated testing laboratory or establish a testing laboratory at the project site which can be validated by the Corps of Engineers in advance of any and all required testing; and in addition, submit proof of validation for approval. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

a. Validation

The testing laboratory shall be validated by the Corps of Engineers Materials Testing Center (MTC) for all tests required by the contract prior to the performance of any such testing. The validation of a laboratory is site specific and cannot be

transferred or carried over to a facility at a different location. Any and all costs associated with this Government laboratory validation shall be borne by the laboratory and/or the Contractor. Validation of a laboratory is not granted for the entire laboratory activity, but only for the specific procedures requested by the inspected laboratory. The inspected laboratory has full choice of the procedures to be inspected except that the Quality Assurance portion of ASTM E 329 is mandatory to be inspected.

(1) Validation Procedures

Validation of a laboratory may consist of either an inspection or audit as defined herein. Validation of all material testing laboratories shall be performed by the MTC. Validation may be accomplished by one of the following processes:

(a) Inspection. Inspection shall be performed by the MTC in accordance with American Society for Testing and Materials (ASTM) standards E329 and D3740.

(b) Audit. A laboratory may be validated by auditing if it has been accredited by the Concrete and Cement Reference Laboratory (CCRL) or AASHTO Materials Reference Laboratory (AMRL) within the past two years in accordance with ASTM E329. Audit shall be performed by the MTC. Inspection by MTC may be required after auditing if one or more of the critical testing procedures required in the project specification were not included in the CCRL or AMRL inspection report or if there is any concern that the laboratory may not be able to provide required services.

b. Standards of Acceptability

(1) Aggregate, concrete, bituminous materials, soil, and rock. Laboratories for testing aggregate, concrete, bituminous materials, soil, and rock shall be validated for compliance with ASTM E 329, Engineer Manual (EM) 1110-2-1906, or project specifications, as applicable.

(2) Water, sediment, and other samples. Laboratories engaged in analysis of water, sediment, and other samples for chemical analysis shall be inspected to assure that they have the capability to perform analyses and quality control procedures described in references in Appendix A as appropriate. The use of analytical methods for procedures not addressed in these references will be evaluated by the CQAB for conformance with project or program requirements.

(3) Steel and other construction materials. Laboratories testing steel and other construction materials shall be validated for capabilities to perform tests required by project requirements and for compliance with ASTM E329.

c. Validation Schedule

(1) For all contracted laboratories and project Quality Assurance (QA) laboratories testing aggregate, concrete, bituminous materials, soils, rock, and other construction materials, an initial validation shall be performed prior to performance of testing and at least every two (2) years thereafter.

(2) Laboratories performing water quality, wastewater, sludge, and sediment testing shall be approved at an interval not to exceed eighteen (18) months.

(3) All laboratories shall be revalidated at any time at the discretion of the Corps of Engineers when conditions are judged to differ substantially from the conditions when last validated.

d. Validation Process

If a validated laboratory is unavailable or the Contractor selects to use a laboratory which has not been previously validated, Contractor shall coordinate with Corps of Engineers Material Testing Center (MTC) to obtain validation and pay all associated costs. Point of contact at MTC is Daniel Leavell, telephone (601) 634-2496, fax (601) 634-4656, email daniel.a.leavell@erdc.usace.army.mil, at the following address:

U.S. Army Corps of Engineers
Materials Testing Center
Waterways Experiment Station
3909 Hall Ferry Road
Vicksburg, MS 39180-6199

Procedure for Corps of Engineers validation, including qualifications and inspection/audit request forms are available at the MTC web site:

<http://www.wes.army.mil/SL/MTC/mtc.htm>

Contractor shall coordinate directly with the MTC to obtain validation. Contractor is cautioned the validation process is complicated and lengthy, may require an onsite inspection by MTC staff, correction of identified deficiencies, and the submittal and approval of significant documentation. Estimate a minimum of 60 days to schedule an inspection/submittal and receive a validation. Cost of onsite inspections is \$4500 plus travel time and cost from Vicksburg MS. Cost of audits is \$2500. If an onsite inspection is required following an audit, the cost of the inspection shall be \$2500 plus travel time and cost. The Contractor will be invoiced for actual travel costs and shall submit payment direct to the MTC made payable to the ERDC Finance and Accounting Officer prior to the scheduling of the inspection and/or audit. The Contractor shall copy the Contracting Officer of all correspondence and submittals to the MTC for purposes of laboratory validation.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, f.o.b., at the following address:

U.S. Army Corps of Engineers
Materials Testing Center
Waterways Experiment Station
3909 Hall Ferry Road
Vicksburg, MS 39180-6199
Phone: (601) 634-2496 or (601) 634-3261

ATTN: Project _____, Contract Number _____

Coordination for each specific test, exact delivery location and dates will be made through the Area Office. If samples are scheduled to arrive at the laboratory on a weekend (after 1700 Friday through Sunday) notify the laboratory at least 24 hours in advance at (601) 634-2496 to arrange for delivery.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

At the 60% (prior to "close-in") and 95% completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager together with the design team professional architects, civil, structural, electrical and mechanical engineers shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include

the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and

dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

Sample forms are attached at the end of this specification section.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

TABLE 1
MINIMUM SAMPLING AND TESTING FREQUENCY

<u>Materials</u>	<u>Test</u>	<u>Minimum Sampling and Testing Frequency</u>
<u>Fills, Embankments, Backfills, Subgrade, Subbase, and Base Course Material</u>		
Fill and Embankment	Field Density ^{<u>2/12/</u>}	Two tests per lift for each increment or fraction of 1,672 square meters (2000 sy) and any time material type changes.
	Lab Density ^{<u>3/</u>}	One test initially per each type of materials or blended material and any time material type changes, and one every 10 field density tests.
	Gradation ^{<u>1/</u>}	One test every 153 cubic meters (200 cubic yards) of fill for each type of materials or blended material and any time material type changes.
Subgrade	Field Density ^{<u>2/12/</u>}	One test per each increment or fraction of 84 square meters (100 s.y.)
	Lab Density ^{<u>3/</u>}	One test every 10 field density tests.
Backfill for Culverts, Trenches, Buildings and Walls, Pavements, and Other Structures	Field Density ^{<u>2/12/</u>}	Culverts: One test per each lift.
		Trenches: One test per lift for each increment or fraction of 152 lineal meters (500 linear feet) for backfill. Under pavements, one test every lift and at every crossing.
		Walls and Buildings Perimeters, Including Footings: One test per lift for each increment or fraction of 61 lineal meters (200 linear feet) of backfill.

<u>Materials</u>	<u>Test</u>	<u>Minimum Sampling and Testing Frequency</u>
		Buildings Slabs on Grade: One test per lift for each increment or fraction of 93 square meters (1000 s.f.)
		Areas enclosed by grade beams, compacted with power driven hand operated compactors: One test per lift for each increment or fraction of 46 square meters (500 s.f.)
		Pavements: Two tests per lift for each increment or fraction of 1,672 square meters (2000 s.y.)
		Other Structures: One test per lift for each increment or fraction of 61 lineal meters (200 linear feet) of backfill.
	Lab Density ^{3/}	One test initially per each type of material or blended material and one every 10 field density tests.
	Gradation ^{1/}	One test per each type of material or blended material and one every 10 field density tests.
Subbase and Base	Gradation ^{1/} (including .02 mm particles size limits.	1 sample for every 3,345 square meters (4,000 sy.)
	In-Place Density ^{2/ 12/}	1 sample every 1,672 square meters (2,000 sy.)
	Moisture-Density Relationship ^{3/}	1 initially and every 20 density tests.
<u>Asphaltic Concrete and Pavements</u> (Non airfield)		
Asphaltic concrete	Marshall method Test	1 test per day minimum and 1 per 907,200 kilograms (1,000 tons) thereafter.
	Specific Gravity	per each Marshall Test.
	Extraction	1 test for each Marshall Method.
	Gradation ^{5/}	1 per each extraction test.
	Fracture faces ^{5/}	1 per each extraction test.

<u>Materials</u>	<u>Test</u>	<u>Minimum Sampling and Testing Frequency</u>
Cored or sawed specimens	Perform complete test (thickness, in-place density and bulk specific gravity) on each cored or sawed sample. ^{12/}	Take 1 set of 3 cored sawed specimens for each 836 square meters (1,000 square yards) or fraction thereof. One specimen shall be taken from longitudinal joint or from transverse joint.
<u>Portland Cement Concrete</u> (Non airfield)		
Coarse and Fine Aggregate ^{7/}	Moisture, specific gravity and absorption ^{8/}	1 initially.
	Gradation and fineness modules	1 every 191 cubic meters (250 cy) of concrete.
	Moisture, specific gravity and absorption ^{8/}	(same as coarse aggregate).
Concrete	Slump	Conduct test every day of placement and for every 19 cubic meters (25 cy) and more frequently if batching appears inconsistent. Conduct with strength tests.
	Entrained Air	Conduct with slump test.
	Ambient and concrete temperatures	Conduct with slump tests.
	Unit weight, yield, and water cement ratio	Conduct with strength tests. Check unit weight and adjust aggregate weights to ensure proper yield.
	Flexural strength and evaluation	When specified for slabs on grade or for concrete pavements, take one set of 6 beams every 76 cubic meters (100 cy) of concrete with a minimum of 1 set per day. Two beams shall be tested at 7 days, two at 28 days, and two at 90 days.

<u>Materials</u>	<u>Test</u>	<u>Minimum Sampling and Testing Frequency</u>
	Compressive strength	One set of 3 cylinders per day and every 76 cubic meters (100 cy) for each class of structural concrete. Test one cylinder at 7 days and two at 28 days. Additional field cure cylinders shall be made when insitu strengths are required to be known.
Vibrators	Frequency and amplitude	Check frequency and amplitude initially and any time vibration is questionable.
	Masonry	
Concrete Masonry Units ^{9/}	Dry shrinkage ^{10/}	1 set of 3 per 10,000 units and manufacturers certification and test report.
	Airdry condition ^{11/}	Same as dry shrinkage.
	Absorption	" " " "
	Compressive strength	" " " "
	Unit Weight	" " " "
Mortar and grout	Compressive Strength	1 set of 3, every 2,000 units (1 test at 7 days and 2 tests at 28 days).

NOTES:

1/All acceptance tests shall be conducted from in-place samples.

2/Additional tests shall be conducted when variations occur due to the contractors operations, weather conditions, site conditions, etc.

3/Classification (ASTM D-2487), moisture contents, Atterberg limits and specific gravity tests shall be conducted for each compaction test if applicable.

4/Materials to be submitted only upon request by the Contracting Officer.

5/Tests can substitute for same tests required under "Aggregates" (from bins or source), although gradations will be required when blending aggregates.

6/Increase quantities by 50 percent for Paving mixes and by 100 percent for Government testing of admixtures. Include standard deviation for similar mixes from the intended batch plant and data from a minimum of 30 tests, if available. Refer to ACI 214.

7/A petrographic report for aggregate is required with the sample for source approval. If the total amount of all types of concrete is less than 153 cubic meters (200 c.y.) service records from three separate structures in similar environments which used the aggregates may substitute for the petrographic report.

8/Aggregate moisture tests are to be conducted in conjunction with concrete strength tests for w/c calculations.

9/For less than 1,000 units, the above test may be waived at the discretion of the Contracting Officer and acceptance based on manufacturers certification and test report.

10/Additional tests shall be performed when changes are made either in the manufacturing processes or in materials used in the production of the masonry units.

11/If adequate storage protection is not provided at the jobsite, additional tests shall be made to determine that the allowable moisture condition has not been exceeded before the blocks can be placed in the structure.

12/The nuclear densometer, if properly calibrated, may be used but only in addition to the required testing frequency and procedures using sandcones. The densometer shall be calibrated and is recommended for use when the time for complete results becomes critical.

3. QUALITY CONTROL INSPECTIONS AND RESULTS: (Include a description of preparatory, initial, and/or follow up inspections or meetings; check of subcontractors work and materials delivered to the site compared to submittals and/or specifications; comments on the proper storage of materials; include comments on corrective actions to be taken):

4. QUALITY CONTROL TESTING AND RESULTS (comment on tests and attach test reports):

5. DAILY SAFETY INSPECTIONS (Include comments on new hazards to be added to the Hazard Analysis and corrective action of any safety issues):

6. REMARKS (Include conversations with or instructions from the Government representatives; delays of any kind that are impacting the job; conflicts in the contract documents; comments on change orders; environmental considerations; etc.):

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material, equipment used, and work performed during this reporting period are in compliance with the contract documents except as noted above.

CONTRACTOR QC REPRESENTATIVE

(Sample of Typical Contractor's Test Report)

TEST REPORT

STRUCTURE OR BUILDING _____

CONTRACT NO. _____

DESCRIPTION OF ITEM, SYSTEM, OR PART OF SYSTEM TESTED:

DESCRIPTION OF TEST: _____

NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TESTS FOR THE
CONTRACTOR:

NAME _____

TITLE _____

SIGNATURE _____

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED ITEM, SYSTEM, OR PART OF SYSTEM
HAS BEEN TESTED AS INDICATED ABOVE AND FOUND TO BE ENTIRELY
SATISFACTORY AS REQUIRED IN THE CONTRACT SPECIFICATIONS.

SIGNATURE OF CONTRACTOR
QUALITY CONTROL INSPECTOR _____

DATE _____

REMARKS

END OF SECTION

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SECTION 01452

SPECIAL INSPECTION FOR SEISMIC-RESISTING SYSTEMS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI INTERNATIONAL (ACI)

ACI 318/318R	(1995) Building Code Requirements for Structural Concrete and Commentary
ACI 318M	(1995) Metric Building Code Requirements for Structural Concrete and Commentary
ACI 530/530.1	(1995) Building Code Requirements for Masonry Structures

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC Pub No. S341	(1997) Seismic Provisions for Structural Steel Buildings
AISC Pub No. S342L	(1993) Load and Resistance Factor Design Specification for Structural Steel Buildings

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 435/A 435M	(1990) Straight-Beam Ultrasonic Examination of Steel Plates
ASTM A 615/A 615M	(1996a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM A 898/A 898M	(1991) Straight Beam Ultrasonic Examination of Rolled Steel Structural Shapes

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

FEMA 302	(Feb 1998) NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures
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1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals not having

a "GA" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-13 Certificates

Special Inspector; GA.

Certification attesting that the Special Inspector is qualified by knowledge and experience to perform the specified Special Inspections. Information, which provides evidence of the knowledge and experience necessary to qualify a person as a Special Inspector for the category of work being certified, will accompany the qualification.

Quality Assurance Plan; GA.

A copy of the Quality Assurance Plan covered by a certificate indicating that the plan meets the content specified in this section.

1.3 SPECIAL INSPECTOR

A Special Inspector shall be used to perform Special Inspections required by this section. The Special Inspector is a person employed by the Contractor and approved by the Government as being qualified by knowledge and experience to perform the Special Inspection for the category of work being constructed. Special Inspectors shall perform their duties independent from the construction quality control staff employed by the Contractor. More than one Special Inspector may be required to provide the varied knowledge and experience necessary to adequately inspect all of the categories of work requiring Special Inspection.

1.4 QUALITY ASSURANCE PLAN

A quality assurance plan shall be developed containing the following:

- a. A list of all items that require quality assurance Special Inspection and testing, including the type, frequency, extent, and duration of the special inspection for each item on this list.
- b. A list of all items that require quality assurance testing, including the type and frequency of testing for each item on this list.
- c. The content, distribution, and frequency of special inspection reports.
- d. The content, distribution, and frequency of testing reports.
- e. The procedures, controls, and people used within the Contractor's organization to develop, sign, and distribute Special Inspection and Testing reports along with the position title and pertinent qualifications of all Contractor personnel involved.

1.5 SPECIAL INSPECTION

The Special Inspection for seismic-resisting system components shall be done as specified. Special Inspector personnel shall be in addition to the quality control inspections and inspectors required elsewhere in this section.

1.5.1 Continuous Special Inspection

Continuous special inspection is the full time observation of the work by the Special Inspector present in the work area whenever work is being performed. Continuous special inspection shall be performed where specified for items as shown on the drawings.

1.5.2 Periodic Special Inspection

Periodic special inspection is the intermittent observation of the work by a Special Inspector present in the work area while work is being performed. The intermittent observation periods shall be at times of significant work, shall be recurrent over the complete work period, and shall total at least 25 percent of the total work time. Periodic special inspection shall be performed where specified for items as shown on the drawings.

PART 2 PRODUCTS NOT USED

PART 3 EXECUTION

3.1 PERFORMANCE OF INSPECTIONS

3.2 Special Inspections shall be performed for the following where designated on the drawings:

3.2.1 Reinforcing Steel

Periodic special inspection during and upon completion of the placement of reinforcing steel in the foundations.

3.2.2 Structural Concrete

Periodic special inspection during and on completion of the placement of concrete for foundation construction.

3.2.3 Structural Steel

a. Continuous special inspection for all structural welding, except the following: periodic special inspection is permitted for single-pass or resistance welds, and welds loaded to less than 50 percent of their design strength, provided the qualifications of the welder and the welding electrodes are inspected at the beginning of the work, and all welds are inspected for compliance with the approved construction documents at the completion of welding.

b. Periodic special inspection in accordance with AISC Pub No. S342L for the installation of bolts in special moment frames.

3.2.4 Architectural Components

Special inspection of the architectural components shall assure that the methods of anchoring and fastening indicated on the drawings are being complied with at the onset of construction of the components, and that the specified or shown number, spacing, and types of fasteners were actually installed. Special inspection for architectural components shall be as follows:

- a. Periodic special inspection during the erection and fastening of interior non-loadbearing partition walls, exterior non-loadbearing walls, and masonry veneer.
- b. Periodic special inspection during the anchorage of access floors and suspended ceilings.

3.2.5 Mechanical and Electrical Components

Special inspection of the mechanical and electrical components shall assure that the methods of anchoring and fastening indicated on the drawings are being complied with at the onset of construction of the component, and that the specified or shown number, spacing, and types of fasteners were actually installed. Special inspection for mechanical and electrical components shall be as follows:

- a. Periodic special inspection during the anchorage of electrical equipment for emergency or standby power systems.
- b. Periodic special inspection during the installation of anchorage of all other electrical equipment.
- c. Periodic special inspection during installation for flammable, combustible, or highly toxic piping systems and their associated mechanical units.
- d. Periodic special inspection during the installation of HVAC ductwork that will contain hazardous materials.

3.3 TESTING

The special inspector shall be responsible for verifying that the testing requirements are performed by an approved testing agency for compliance with the following, where shown on the drawings:

- a. Reinforcing Steel: Special testing of reinforcing steel shall be as follows:

- (1) Examine certified mill test reports for each shipment of reinforcing steel used in reinforced concrete ordinary frames, boundary members of reinforced concrete shear walls, and reinforced masonry shear walls. The special inspector shall determine conformance with the construction documents.

- (2) Examine the reports for chemical tests, done in accordance with Sec. 3.5.2 of ACI 318M ACI 318/318R, which were performed to determine the weldability of ASTM A 615/A 615M reinforcing steel.

- b. Structural Concrete: Verify that samples of structural concrete obtained at the project site, along with all material components obtained at the batch plant, have been tested in accordance with the requirements of ACI 318M ACI 318/318R and comply with all acceptance provisions contained therein.

- c. Structural Steel:

(1) Verify that all quality assurance testing needed to confirm required material properties contained in Section 05120 STRUCTURAL STEEL has been done in accordance with applicable provisions in AISC Pub No. S341 and AISC Pub No. S342L and that the test results comply with all acceptance provisions contained therein.

(2) When a flange or a plate of steel member with a base metal thickness greater than 38 mm (1.5 inches) is joined by welding so that the flange or plate is subjected to through-thickness weld shrinkage strains, verify that the required ultrasonic testing for discontinuities behind and adjacent to such welds has been done after joint completion. Further verify that any material discontinuities rejected on the basis of the requirements contained in Section 05120 STRUCTURAL STEEL were repaired and were re-tested after the repairs and found acceptable.

3.4 REPORTING AND COMPLIANCE PROCEDURES

a. On the first day of each month, the Contractor shall furnish to the Government five copies of the combined progress reports of the special inspector's observations. These progress reports shall list all special inspections of construction or reviews of testing performed during that month, note all uncorrected deficiencies, and describe the corrections made both to these deficiencies and to previously reported deficiencies. Each monthly report shall be signed by all special inspectors who performed special inspections of construction or reviewed testing during that month, regardless of whether they reported any deficiencies. Each monthly report shall be signed by the Contractor.

b. At completion of construction, each special inspector shall prepare and sign a final report attesting that all work they inspected and all testing and test reports they reviewed were completed in accordance with the approved construction documents and that deficiencies identified were satisfactorily corrected. The Contractor shall submit a combined final report containing the signed final reports of all the special inspectors. The Contractor shall sign the combined final report attesting that all final reports of special inspectors that performed work to comply with these construction documents are contained therein, and that the Contractor has reviewed and approved all of the individual inspector's final reports.

END OF SECTION

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SECTION 01501

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 AVAILABILITY AND USE OF UTILITY SERVICES (FAR 52.236-14, Apr 1984)

1.1.1 The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by Government, at reasonable rates determined by Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

1.1.2 The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

1.2 AVAILABILITY AND USE OF UTILITY SERVICES AT FORT LEWIS

Reference Paragraph 1.1, Availability and Use of Utility Services. No utility services are furnished without charge at Fort Lewis unless otherwise specifically stated in the contract. For utilities to be purchased from Government, the contractor shall enter into a utility sales agreement with the Government. The cost of each utility service obtained from the Government, shall be paid for by the Contractor at prevailing rates, as determined by the Utility Sales Officer. The Contractor shall furnish, install and maintain all necessary meters, regulating equipment and service connections to each utility system. For utility services, to be purchased from the Government, plans for all such facilities shall be subject to the approval of the Utility Sales Officer (or designee) and installation of such facilities shall be subject to his/her supervision (or designee's). The Utility Sales Officer (or designee) will read the meters. The Installation Utility Sales Officer can be reached at (253) 966-1738. Natural gas requirements at Ft. Lewis shall be coordinated with and obtained from Puget Sound Energy. Utility services obtained from private service providers at Ft. Lewis shall be coordinated with and obtained from the particular private provider.

1.3 SANITARY PROVISIONS

Contractor shall provide sanitary accommodations for the use of employees as may be necessary and shall maintain accommodations approved by the Contracting Officer and shall comply with the requirements and regulations of the State Health Department, County Sanitarian, or other authorities having jurisdiction.

1.4 TEMPORARY ELECTRIC WIRING

1.4.1 Temporary Power and Lighting

The Contractor shall provide construction power facilities in accordance with the safety requirements of the National Electric Code NFPA No. 70 and the SAFETY AND HEALTH REQUIREMENTS MANUAL EM 385-1-1. The Contractor, or its delegated subcontractor, shall enforce the safety requirements of electrical extensions for the work of subcontractors. Work shall be accomplished by journeyman electricians.

1.4.2 Construction Equipment

In addition to the requirements of SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1, temporary wiring conductors installed for operation of construction tools and equipment shall be either Type TW or THW contained in metal raceways, or shall be hard usage or extra hard usage multiconductor cord. Temporary wiring shall be secured above the ground or floor in a workmanlike manner and shall not present an obstacle to persons or equipment. Open wiring may only be used outside of buildings, and then only in accordance with the provisions of the National Electric Code.

1.4.3 Submittals

Submit detailed drawings of temporary power connections. Drawings shall include, but not be limited to, main disconnect, grounding, service drops, service entrance conductors, feeders, GFCI'S, and all site trailer connections.

1.5 FIRE PROTECTION

During the construction period, the Contractor shall provide fire extinguishers in accordance with the safety requirements of the SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1. The Contractor shall remove the fire extinguishers at the completion of construction.

1.6 STAGING AREA

Contractor will be provided adequate open staging area as directed by the Contracting Officer. Area is unsecured, and Contractor shall make provisions for its own security.

Contractor shall be responsible for keeping staging area, and office area clean and free of weeds and uncontrolled vegetation growth. Weeds shall be removed by pulling or cutting to within 1-inch of ground level. Lawn areas shall be mown to keep growth to less than 2-inches. All loose debris and material subject to being moved by prevailing winds in the area shall be picked up or secured at all times.

If the area is not maintained in a safe and clean condition as defined above the Contracting Officer may have the area cleaned by others with the costs being deducted from the Contractor's payment.

1.7 HOUSEKEEPING AND CLEANUP

Pursuant to the requirements of Clause CLEANING UP and Clause ACCIDENT PREVENTION, of the CONTRACT CLAUSES, the Contractor shall assign sufficient personnel to ensure

compliance. The Contractor shall submit a detailed written plan for implementation of this requirement. The plan will be presented as part of the preconstruction safety plan and will provide for keeping the total construction site, structures, and accessways free of debris and obstructions at all times. Work will not be allowed in those areas that, in the opinion of the Contracting Officer, have unsatisfactory cleanup and housekeeping at the end of the preceding day's normal work shift. At least once each day all areas shall be checked by the Quality Control person of the Contractor and the findings recorded on the Quality Control Daily Report. In addition, the Quality Control person shall take immediate action to ensure compliance with this requirement. Housekeeping and cleanup shall be assigned by the Contractor to specific personnel. The name(s) of the personnel shall be available at the project site.

1.8 DIGGING PERMIT

Before performing any onsite excavation, Contractor shall obtain a digging permit. The digging permit can be obtained at Directorate of Public Works, Building 2012, room 110, telephone 253-967-5237, on weekdays between 8 a.m. and 3:30 p.m. Typically it will take a Contractor 3-5 working days to collect all signatures necessary for clearances prior to the permit being issued.

1.9 CONSTRUCTION NEAR COMMUNICATIONS CABLES

1.9.1 Excavation Near Communication Cables

Digging within .9144 meters (3 feet) of communication cables (including fiber optic cables) shall be performed by hand digging until the cable is exposed. The Contracting Officer shall be notified a minimum 3 days prior to digging within a .9144 meter (3-foot) area near cable. The cable route will be marked by the Government prior to excavation in the area. A digging permit shall be obtained by the Contractor before performing any excavation. The Contractor shall be held responsible for any damage to the cable by excavation procedures. Once the cable is exposed, mechanical excavation may be used if there is no chance of damage occurring to the cable.

1.9.2 Reburial of Exposed Utilities

When existing utility lines are reburied a tape, detectable by pipe detector systems, shall be installed above the uncovered length of the utility at a depth of 305 mm (12 inches) below grade. Tape shall be a minimum .127 mm (5 mil) plastic tape with metallic tracer, minimum 76 mm (3 inches) wide, lettering on tape to show buried utility, and brightly colored.

1.9.3 Access to Communications Manhole or Handhole

No communication or manhole shall be entered without first obtaining authorization from DOIM (Directorate of Information Management) through the COE project manager.

1.9.4 Cable Cuts or Damage

If a communications cable is cut or damaged the Contractor shall immediately notify the Contracting Officer (CO) and begin gathering personnel and equipment necessary to repair the cut, or damage. Contractor shall begin repairs within one hour of the cut or damage, unless notified otherwise, and continue repairs without interruption until full service is restored.

1.10 PROJECT SIGN

Contractor shall furnish and install two project signs in accordance with conditions hereinafter specified and layout shown on drawing No. 49s-40-05-15, Sheets 1 and 2, except Corps of Engineers' castle and Department of Army seal will be Government furnished. All letters shall be block type, upper case. Letters shall be painted as indicated using exterior-type paint. Sign shall be maintained in excellent condition throughout the life of job. Project sign shall be located as directed. Upon completion of project, sign shall be removed and shall remain the property of Contractor.

1.11 CONCEALED WORK

All items of work to be concealed shall be Government inspected prior to concealment.

1.12 REPAIR OF ROAD CUTS

Asphaltic surface shall be completely in place within 48 hours after placement of base gravel. Between placement of base gravel and pavement, road shall be kept in driveable and passable condition.

1.13 ELEVATED WORK AREAS

Workers in elevated work areas in excess of 2 meters (6 feet) above an adjoining surface require special safety attention. In addition to the provisions of SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1, the following safety measures are required to be submitted to the Contracting Officer's Representative. Prior to commencement of work in elevated work areas, the Contractor shall submit drawings depicting all provisions of his positive fall protection system including, but not limited to, all details of guardrails. Positive protection for workmen engaged in the installation of structural steel and steel joist shall be provided by safety nets, tie-offs, hydraulic man lifts, scaffolds, or other required means. Decking crews must be tied-off or work over nets or platforms not over 2 meters (6 feet) below the work area. Walking on beams and/or girders and the climbing of columns is prohibited without positive protection. Perimeter guardrails shall be installed at floor, roof, or wall openings more than 2 meters (6 feet) above an adjoining surface and on roof perimeters. Rails shall be designed to protect all phases of elevated work including, but not limited to, roofing operations and installation of gutters and flashing. Rails around roofs may not be removed until all work on the roof is complete and all traffic on or across the roof ceases. Rails shall be designed by a licensed engineer to provide adequate stability under any anticipated impact loading. As a minimum, the rails shall consist of a top rail at a height of 1067 mm (42 inches), a mid-rail, and a toe board. Use of tie-offs, hydraulic man lifts, scaffolds, or other means of roof edge protection methods may be utilized on small structures such as family housing, prefabricated metal buildings, etc. If safety belts and harnesses are used, the positive fall protection plan will address fall restraint versus fall arrest. Body belts will ONLY be used for fall restraint, they will not be used for fall arrest.

1.14 TRAFFIC CONTROL PLAN

The Contractor shall submit a Traffic Control Plan for moving traffic through and around the construction zone in a manner that is conducive to the safety of motorists, pedestrians, and workers. This plan shall indicate scheduling, placement, and maintenance of traffic control devices in accordance with the U.S. Department of Transportation, Federal Highway

Administration publication, Manual on Uniform Traffic Control Devices. The Contractor shall obtain, in writing, from the Directorate of Public Works (PW) Traffic Engineer, through the Contracting Officer, approval of the Traffic Control Plan. The Contractor shall submit his Traffic Control Plan at least 15 working days prior to commencement of street or road work. Streets (except dead end) may be closed to traffic temporarily (except at least one access lane shall be kept open to traffic) by approved written request to the Contracting Officer at least 10 working days prior to street closure. Excavations shall not remain open for more than 1 working day without approval. The Contractor shall identify by site inspection and indicate on the plan all roads and trails used by military or civilian wheeled and tracked vehicular traffic and, by traffic control devices, prevent this traffic from entering the construction zone.

1.15 UTILITIES NOT SHOWN

The Contractor can expect to encounter, within the construction limits of the entire project, utilities not shown on the drawings and not visible as to the date of this contract. The Contractor shall scan the construction site with electromagnetic or sonic equipment, and mark the surface of the ground where existing utilities are discovered. The Contractor shall verify the elevations of existing utilities, piping and any type of underground obstruction not indicated, or indicated and not specified to be removed. If such utilities interfere with construction operations, he shall immediately notify the Contracting Officer verbally and then in writing to enable a determination by the Contracting Officer as to the necessity for removal or relocation. If such utilities are removed or relocated as directed, the Contractor shall be entitled to equitable adjustment for any additional work or delay. The types of utilities the Contractor may encounter are waterlines, sewer lines (storm and sanitary), gas lines, fueling lines, steam lines, buried fuel tanks, septic tanks, other buried tanks, communication lines, cathodic protection cabling, and power lines. These utilities may be active or abandoned utilities.

1.16 GOVERNMENT WITNESSING AND SCHEDULING OF TESTING

The Contractor shall notify the Contracting Officer, by serial letter, of dates and agenda of all performance testing of the following systems: mechanical (including fire protection and EMCS), electrical (including fire protection) medical and food service systems a minimum of 10 calendar days prior to start of such testing. In this notification, the Contractor shall certify that all equipment, materials, and personnel necessary to conduct such testing will be available on the scheduled date and that the systems have been prechecked by him and are ready for performance and/or acceptance testing. Contractor shall also confirm that all operations and maintenance manuals have been submitted and approved. NO PERFORMANCE AND/OR ACCEPTANCE TESTING WILL BE PERMITTED UNTIL THE OPERATIONS AND MAINTENANCE MANUALS HAVE BEEN APPROVED.

Government personnel, at the option of the Government, will travel to the site to witness testing. If the testing must be postponed or canceled for whatever reason not the fault of the government, the Contractor shall provide the Government not less than 3 working days advance notice (notice may be faxed) of this postponement or cancellation. Should this 3 working day notice not be given, the Contractor shall reimburse the Government for any and all out of pocket expenses incurred for making arrangements to witness such testing including, but not limited to airline, rental car, meal, and lodging expenses. Should testing be conducted, but fail and have to be rescheduled for any reason not the fault of the Government, the Contractor shall similarly reimburse the Government for all expenses incurred.

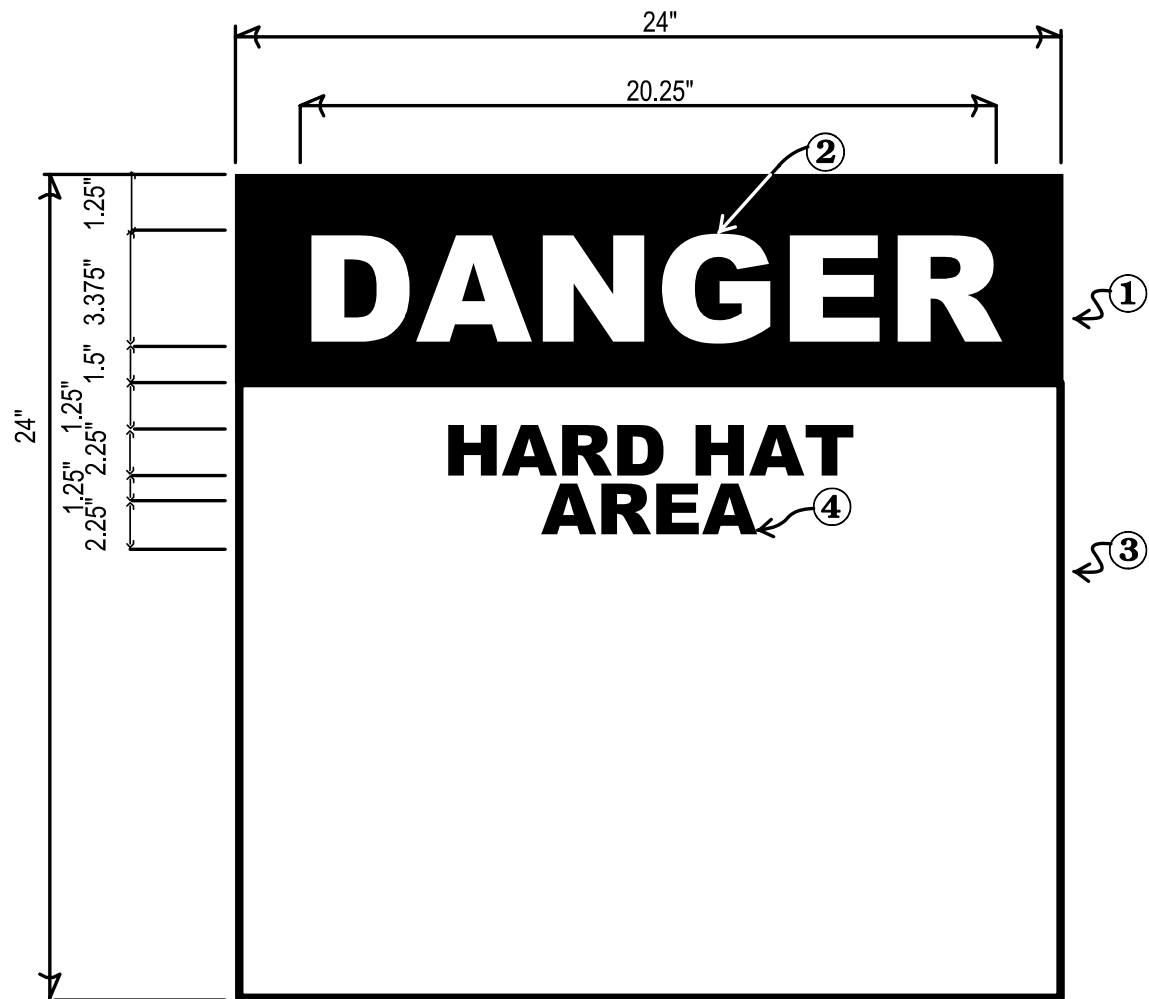
1.17 OFFICE SPACE

The Contractor shall furnish office space of approximately 1000 square feet (5 offices, 1 conference room and one restroom for the use of the contracting Officer) with power, water, appropriate office furniture, heat and air-conditioning, and perform any necessary maintenance. Electrical and communication outlets shall be provided for each office area and the conference room. Each office area shall be furnished with one 3' x 5' desk and one 3' x 4' plans table. The desks shall each have side drawers and a lockable center drawer. The plans tables shall each have one central drawer. Provide one wheeled, padded, ergonomic desk chair for each office space. Each office area shall be furnished with a wall locker suitable for hanging coats, rain gear and general storage, and a 4' x 4' whiteboard. The locker shall be 60 to 72 inches high, 18 to 24 inches wide, and a minimum of 18 inches deep. The conference room shall be furnished with a 4' x 10' conference table, ten chairs and one 4' x 8' whiteboard. Provide a ten-pound, multi-purpose, dry chemical fire extinguisher, rated for type A, B and C fires. Mount extinguisher at a strategic location, coordinated with the Contracting Office. A water cooler shall be provided for drinking water along with 10 gallons of filtered drinking water per week. Provide a 16-unit first aid kit mounted near the entrance door. Provide janitorial services for the field office trailer, once per week. Provide adequate parking for 6 cars, with sidewalks from the office to the parking area. The office, electrical, communication, parking and gravel sidewalks shall be ready for occupancy prior to the start of any onsite construction activity. The office and furnishings will remain the property of the Contractor. Telephone service shall be provided for the duration of time that the Contractor provides telephone service for himself. The Government will pay only charges for long distance calls made by Government personnel. Contractor shall be responsible for installing all utility hookups, tie downs, skirting, slabs, foundations, steps and landings to meet all local, county, state and federal codes and regulations. Upon completion of the project, the trailer shall be removed from the site, all utilities and site improvements associated with the office shall be removed, and the site restored to match surrounding conditions.

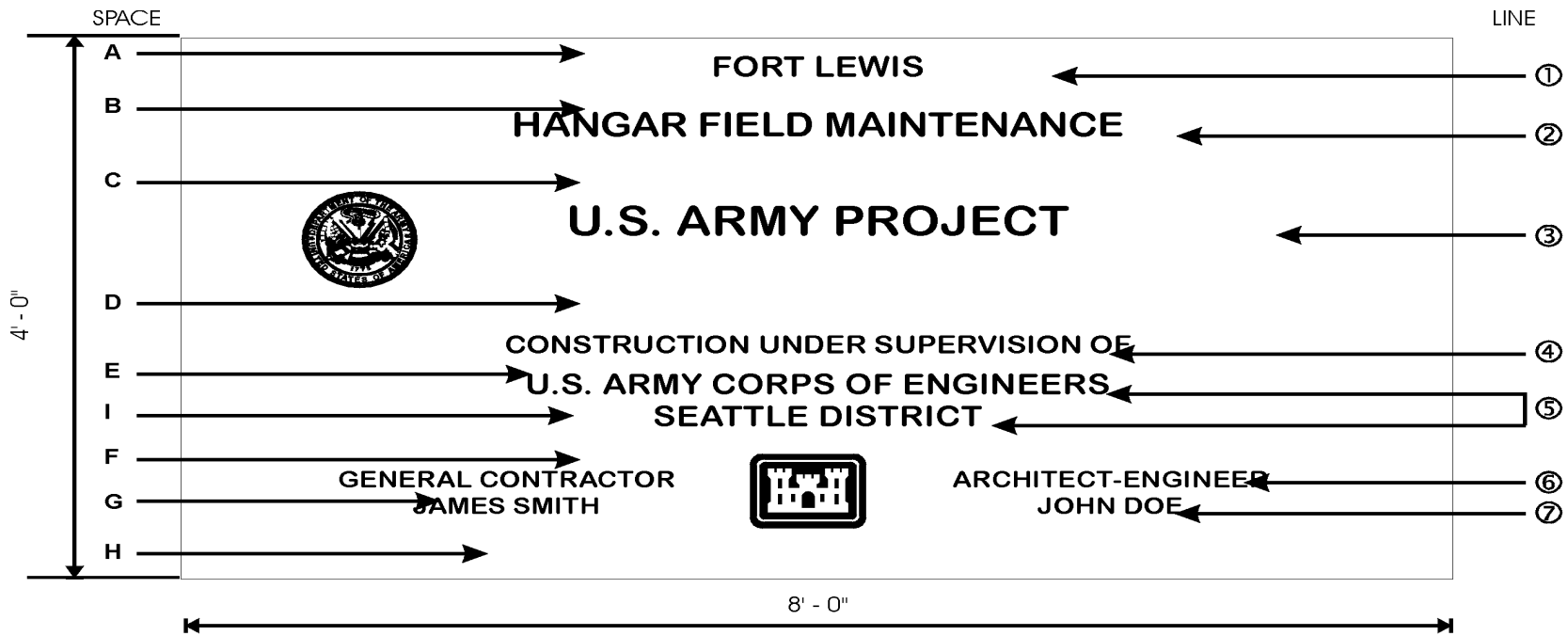
1.18 HARD HAT SIGNS

The Contractor shall provide 610 mm by 610 mm (24 by 24 inch) square Hard Hat Area signs at each entry to the project or work area as directed by the Contracting Officer. A minimum of two signs will be required. Signs shall be in accordance with the sketch at the end of this section.

PART 2 PRODUCTS AND PART 3 EXECUTION (NOT APPLICABLE)



- SIGN SHALL BE FABRICATED FROM .125 THICK 6061-T6 ALUMINUM PANEL
- COLOR
 1. SAFETY RED (SR)
 2. WHITE
 3. WHITE
 4. BLACK
- LETTERING SHALL BE HELVETICA BOLD TYPOGRAPHY.
- LETTERS AND BACKGROUND SHALL BE REFLECTIVE SHEETING MATERIAL.
- SIGNS SHALL BE POSTED AT 6'-6" (BOTTOM SIGN TO GRADE) OR AS DIRECTED BY THE CONTRACTING OFFICER.
- LETTERING TO BE CENTERED ON PANEL.



SAMPLE CONSTRUCTION SIGN FOR MCP PROJECTS SCHEDULE

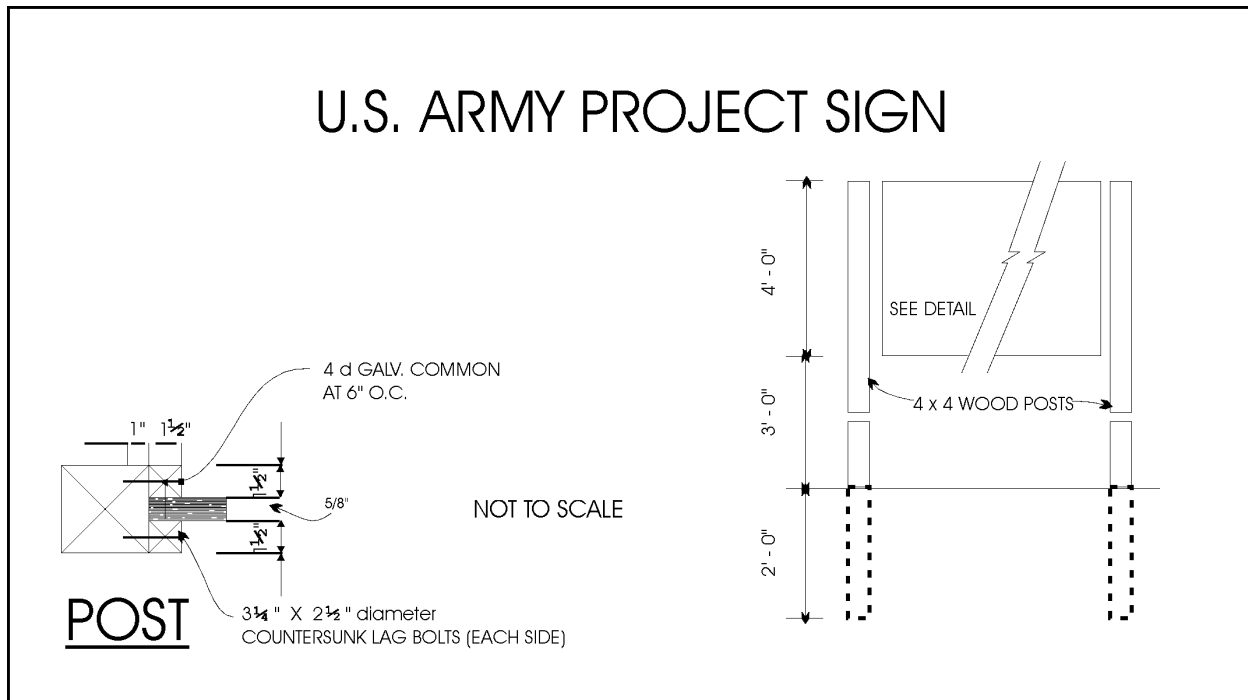
SPACE	HT.	LINE	DESCRIPTION	LETTER HT.	STROKE
A	2"	1	LOCATION	2 3/8"	1/4"
B	2 5/8"	2	PROJECT NOMENCLATURE *	2 3/4"	3/8"
C	5 3/4"	3	U.S. ARMY PROJECT	4"	1/2"
D	8"	4	CONSTRUCTION UNDER SUP.	1 1/2"	1/8"
E	4"	5	CONSTRUCTION AGENCY *	2 3/8"	1/4"
F	4"	6	GENERAL CONTRACTOR *	1 3/8"	3/16"
G	1"	7	GENERAL CONTRACTOR*	1 3/8"	3/16"
H	2 7/8"	*	WILL VARY TO SUIT PROJECT REQUIREMENTS		
I	2		SEATTLE DISTRICT		

U.S. ARMY

**PROJECT
CONSTRUCTION SIGN**

Sheet 1 of 2 Scales As shown
U.S. Army Engr. Dist. Seattle, WA.

Dr:	R.L.W.	Transmitted with report
Tr:	R.L.W.	DATED: 20 JUNE 84
Ck:	R.L.W.	File No. 49s/40-05-15



NOTES:

1. Signboard 4' x 8' x 5/8" grade A-C exterior type plywood with medium density overlay on both sides.
2. Paint both sides and edges with one prime coat and two coats of paint, color white exterior type enamel. Lettering shall be as shown on drawing and shall be black gloss exterior type enamel.
3. Lettering shall be Helvetica medium.
4. Acceptable abbreviations may be used for Contractor's name.
5. Department of Air Force Seal and Corps of Engineers' Castle to be Government furnished.
6. No company logo shall be used.
7. Sign posts and 1½" wood trim shall be painted white.
8. Upon completion of work under this contract, the project sign shall be removed from the job site and shall remain the property of the Contractor.

NOTE: The Contractor shall verify the colors to be used with the Contracting Officer prior to constructing the sign.

SHEET 2 OF 2

END OF SECTION

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SECTION 01572

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

PART 1 GENERAL

1.1 GOVERNMENT POLICY

Government policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy the Contractor shall: (1) practice efficient waste management when ordering, sizing, cutting, and installing products and materials, (2) use all reasonable means to avoid the creation of construction and demolition waste (such as minimizing packaging materials and other intermediate products not used in the finished construction) and (3) divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse.

1.2 MANAGEMENT

The Contractor shall take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. The Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage, or recycling shall accrue to the Contractor. Firms and facilities used for recycling, reuse, and disposal shall be appropriately permitted for the intended use to the extent required by federal, state, and local regulations.

1.3 PLAN

A waste management plan shall be submitted within 15 days after contract award and prior to initiating any site preparation work. The plan shall include the following:

- a. Name of individuals on the Contractor's staff responsible for waste prevention and management.
- b. Actions that will be taken to avoid and reduce solid waste generation.
- c. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas and equipment to be used for processing, sorting, and temporary storage of wastes.
- d. Characterization, including estimated types and quantities, of the waste to be generated.

- e. Name of landfill(s) and/or incinerator(s) to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.
- f. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity.
- g. List of specific waste materials that will be salvaged for resale, salvaged and reused, or recycled. Recycling facilities that will be used shall be identified. If a recycling facility (public or private) exists within a 50 mile radius of the project site, it use is required for all materials that facility accepts and that cannot be otherwise reused.
- h. Identification of materials that cannot be recycled/reused with an explanation or justification.
- i. Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the materials and the incineration and/or landfill cost avoidance.

1.4 RECORDS

Records shall be maintained to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. The records shall be made available to the Contracting Officer during construction, and a copy of the records shall be delivered to the Contracting Officer upon completion of the construction.

1.5 COLLECTION

The necessary containers, bins and storage areas to facilitate effective waste management shall be provided and shall be clearly and appropriately identified. Recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials and separated by one of the following methods:

1.5.1 Source Separated Method.

Waste products and materials that are recyclable shall be separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing.

1.5.2 Co-Mingled Method.

Waste products and recyclable materials shall be placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed.

1.5.3 Other Methods.

Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

1.5.4 Mandatory Materials for Collection.

The collection and segregation of certain waste materials is mandatory. These materials shall include: soils, organic materials (clean green), concrete, asphalt, masonry, metals, aluminum, glass, paper, cardboard, recyclable plastics, gypsum board, clean dimensional lumber.

1.5.5 Hazardous Materials.

Any hazardous materials utilized or generated during construction shall not be commingled with reuse/recycle materials. Clearly label hazardous material storage and locate remote from reuse/recycle materials.

1.6 DISPOSAL

Except as otherwise specified in other sections of the specifications, disposal shall be in accordance with the following:

1.6.1 Reuse.

First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Sale or donation of waste suitable for reuse shall be considered. Salvaged materials, other than those specified in other sections to be salvaged and reinstalled, shall not be used in this project.

1.6.2 Recycle.

Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling whenever economically feasible.

1.6.3 Waste.

Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

1.7 PROJECT WASTE MANAGEMENT REQUIREMENT

The contractor shall salvage or recycle at least 50 percent (by weight) of the generated construction, demolition and land clearing waste.

END OF SECTION

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SECTION 01670

RECYCLED / RECOVERED MATERIALS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 247	Comprehensive Procurement Guideline for Products Containing Recovered Material
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1.2 OBJECTIVES

Government procurement policy is to acquire, in a cost effective manner, items containing the highest percentage of recycled and recovered materials practicable consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing suppliers' employees to undue hazards from the recovered materials. The Environmental Protection Agency (EPA) has designated certain items which must contain a specified percent range of recovered or recycled materials. EPA designated products specified in this contract comply with the stated policy and with the EPA guidelines. The Contractor shall make all reasonable efforts to use recycled and recovered materials in providing the EPA designated products and in otherwise utilizing recycled and recovered materials in the execution of the work.

1.3 EPA DESIGNATED ITEMS INCORPORATED IN THE WORK

Various sections of the specifications contain requirements for materials that have been designated by EPA as being products that are or can be made with recovered or recycled materials. These items, listed in 40 CFR 247, when incorporated into the work under this contract, shall contain at least the specified percentage of recycled or recovered materials unless adequate justification (non-availability) for non-use is provided. When a designated item is specified as an option to a non-designated item, the designated item requirements apply only if the designated item is used in the work.

1.4 EPA PROPOSED ITEMS INCORPORATED IN THE WORK

The items listed below have been identified by EPA as being products which are still being researched and are being considered for future Comprehensive Procurement Guideline (CPG) designation. It is recommended that these items, when incorporated in the work under this contract, contain the highest practicable percentage of recycled or recovered materials, provided specified requirements are also met.

EPA ITEMS CONSIDERED FOR CPG III DESIGNATION

- Carpet Runners
- Flooring Materials
- Hardboard
- Medium Density Fiberboard
- Nylon Carpet
- Particleboard
- Interior Trim and Window Frames
- Roofing Materials
- Rubberized Asphalt
- Building Blocks
- Decking Material
- Plastic Pipe
- Aggregates
- Concrete Containing Silica Fume

1.5 EPA LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

There are many products listed in 40 CFR 247 which have been designated or proposed by EPA to include recycled or recovered materials that may be used by the Contractor in performing the work but will not be incorporated into the work. These products include office products, temporary traffic control products, and pallets. It is recommended that these non-construction products, when used in the conduct of the work, contain the highest practicable percentage of recycled or recovered materials.

END OF SECTION

SECTION 01701

OPERATIONS AND MAINTENANCE MANUALS

PART 1 GENERAL

1.1 SUBMITTALS

Submittals shall be in accordance with SECTION 01330: SUBMITTAL PROCEDURES.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall provide Operation and Maintenance (O&M) manuals for the complete project as applicable under this contract, including all Contractor furnished and installed equipment, systems and materials, and all Government furnished-Contractor installed equipment, systems and materials. Included herein are requirements for compiling and submitting the O&M data. Additional O&M data requirements are specified in the individual sections of the technical specifications. O & M Manual requirements shall be coordinated with the requirements as stated in the other technical specification sections and shall include listings for spare parts, framed instructions, etc.

3.1.1 PREPARATION

Manual preparation shall be under the direction of an individual or organization that has demonstrated expertise and a minimum of 3 years experience in the preparation of comprehensive and complete O&M manuals. Qualifications shall be submitted for Contracting Officer approval.

3.1.2 FORMAT

3.1.2 O&M data shall be separated into distinct systems. O&M manuals for any particular system shall include narrative and technical descriptions of the interrelations with other systems. This narrative shall include a description on how the system works with notable features of the system, including normal and abnormal operating conditions. The explanation of the system is to be short and concise with reference to specific manufacturer's equipment manuals for details (see paragraph CONTENT, subparagraph b). If the quantity of material is such that it will not fit within one binder then it shall be divided into volumes, as required (see paragraph Binders).

3.1.3 Six CDs, and three hardcopies of the complete set of manuals shall be provided for each building (as identified by a building number or building description) for multi-building projects. For those multi-building projects where the work is identical in each building, one CD is required for each building plus six additional CDs, and the three hardcopies. For those projects that do not have work in specific buildings, six CDs and three sets of hardcopies are required for the complete project. Any project may have a combination of these requirements to determine the total number of copies required.

3.1.4 The requirement for six copies of the O&M manual shall supersede and replace any requirements for a lesser amount of manuals which may be indicated in some specifications. Each set of manuals shall be tailored for its respective building or facility.

3.2 PRELIMINARY O&M MANUAL AND DATA SUBMITTAL

To establish and assure uniform O&M manual format, the Contractor shall submit two copies of complete set of O & M data without the binders and receive Contracting Officer approval on one (1) of the sets prior to submission of the final bound manuals. Initial O & M Manual data submittal shall be a minimum of 30 days prior to 90 percent project completion.

The Contractor shall also provide two typewritten pages representing the proposed binder marking format as required under Paragraph: Marking and Binding. One page will represent the front cover/spine and the other page will represent the inside of the front cover.

3.2.1 Data submitted for the manual are to be for the specific equipment furnished, and are in addition to that furnished as shop drawings.

3.2.2 The Contracting Officer will require thirty (30) days for review of submitted O&M manual(s) or data. The Contracting Officer will retain one copy of unacceptable O&M manual submittal and return remainder of copies to the Contractor marked "Returned for Correction." If "Returned for Correction." the Contractor shall resubmit the required number of copies of the manual(s) incorporating all comments, prior to substantial completion and/or use and possession. The Contractor may, at his option, update the copy retained by the Government in lieu of providing the added copy.

3.2.3 For equipment or systems requiring personnel training and/or acceptance testing, all O&M data needed for testing shall be approved by the Contracting Officer prior to the scheduling of the training and/or testing. O&Ms in final bound format shall be submitted in a timely manner so all manuals will be approved in the required quantity, prior to the final inspection. Failure to furnish approved, bound manuals in the required quantity by the final inspection may delay the final inspection and will be cause for the Contracting Officer to hold or adjust the retained percentage in accordance with CONTRACT CLAUSE, PAYMENTS UNDER FIXED PRICE CONSTRUCTION CONTRACTS.

3.2.4 Three of the six completed copies of the final O&M manuals (for each building) shall contain original manufacturer's data. Data in the remaining manuals may be duplicated copies of original data. All data furnished must be of such quality to reproduce clear, legible copies.

3.3 BINDERS

3.3.1 Construction and Assembly

Manuals shall be sliding posts or screw-type aluminum binding posts (three screws) with spine, but only one type shall be used for all manuals. The manuals shall be hardback plastic-covered, cleanable, not over 76 mm (3 inches) thick and designed for 216 mm by 279 mm (8-1/2 by 11 inch) paper. The hard cover shall be of minimum stiffness equal to 2.03 mm (0.080 inch) display board or double weight illustration board.

3.3.2 Marking and Binding

As appropriate, systems shall be grouped into four separate categories and bound into four volumes as follows: Mechanical, Electrical, Fire Alarm/Security, and Architectural/General.

Each binder shall have the following information, as a minimum, inscribed on both the spine and cover using an offset or silk screen printing process; "EQUIPMENT OPERATION, MAINTENANCE, AND REPAIR MANUAL;" BUILDING NAME, IDENTIFICATION NUMBER (Building No.), LOCATION, AND DISCIPLINE (MECHANICAL, ELECTRICAL, FIRE ALARM/SECURITY, ARCHITECTURAL/GENERAL). Contractor's name and address as well as the contract title and contract number shall be printed on the inside of the front cover.

3.3.3 Color

Color of binder and printing shall be the option of the Contractor except that; (a) printing color shall contrast with binder color, and (b) colors shall be the same for all manuals.

3.3.4 Content

The O&M manuals shall be structured to address each of the following topics in order for each system. When the topic does not apply to a particular system the topic name will be included in the manual with the words "DOES NOT APPLY."

a. Warning Page: A warning page shall be provided to warn of potential dangers (if they exist), such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, or high pressures. The warning page shall be placed inside the front cover, in front of the title page.

b. Index: Each manual shall have a master index at the front identifying all manuals and volumes and subject matter by system name for each. Following the master index, each manual shall have an index of its enclosures listing each volume, tab numbers, etc., as necessary to readily refer to a particular operating or maintenance instruction. Rigid tabbed fly leaf sheets shall be provided for each separate product and/or piece of equipment under each system in the manual. For example, if a system includes Air Handling Units 1 through 5, there shall be tab sheets AHU-1, AHU-2, AHU-3, AHU-4 and AHU-5. When a manual is divided into volumes, each volume shall have a master index at its front, followed by an index for the specific volume listing in detail all enclosed instructions for materials, individual pieces of equipment, and systems. All pages shall be numbered with the referenced number included in the index.

c. Description: Narrative and technical descriptions of the system and of the interrelations with other systems.

d. Check List Prior to Start Up: Precautions and prechecks prior to start up of equipment and/or system, including safety devices, monitoring devices and control sequence shall be provided.

e. Start Up and Operation: Step-by-step sequential procedures for start up and normal operation checks for satisfactory operation shall be provided. Safety precautions and instructions that should be followed during these procedures shall be incorporated into the

operating instructions and flagged for the attention of the operator. Procedures shall include test, manual or normal, and automatic modes.

f. Shutdown: Procedures for normal and emergency shutdown of equipment and/or systems shall be provided. The instructions shall include any procedures necessary for placing the equipment and/or system on standby or preparing the equipment and/or system for start up at a later time. Procedures shall include test, manual or normal, and automatic modes.

g. Operator Preventive Maintenance, Major Maintenance, and Adjustments: The instructions shall include recommended operator preventive maintenance which would normally be performed by operating personnel and adjustment procedures necessary for normal operation. Schedules shall be provided indicating time frames or operating hours for initiating operator maintenance and adjustments, and including manufacturer's recommended major maintenance requirements. Emergency adjustments shall be included and flagged for operator's attention; the instructions shall also include procedures for emergency repairs that could be performed by operating personnel. These emergency repairs or "trouble-shooting guides" shall be outlined in three columns with the following headings:

Column 1 - Trouble
Column 2 - Probable Cause(s)
Column 3 - Correction

h. Operator Data: The instructions shall include equipment and/or system layouts showing all piping, wiring, breakers, valves, dampers, controls, etc., complete with diagrams, schematics, isometrics, and data to explain the detailed operation and control of each individual piece of equipment and/or system, including system components. Layouts shall show the location within the facility of controls, valves, switches, dampers, etc., by reference to site location, wing designation, floor, room number, or other clear and concise directions for locating the item. Operator data may be identical to posted data and framed instructions but shall be prepared as part of the O&M manuals. All control systems operations data shall include the following:

(1) A fully labeled control schematic which details all set points, throttling ranges, actions, spans, proportional bands, and any other adjustment.

(2) A fully labeled elementary diagram (ladder diagram).

(3) A sequence of control on the diagrams cross-referenced to the control schematic and elementary diagram.

(4) A generic, functional description of each control component shown on the drawings.

(5) Catalog data of every control device.

i. Electrical Layout Drawings: The Electrical O&M's shall include complete layout drawings and one-line diagrams of exterior and interior electrical with reference to the buildings and site layout. Drawings shall include layout of interior lighting, interior power, intrusion detection systems, communication systems and fire protection systems. Exterior layout drawings shall show where fed from, pad-mount transformer, metering, main distribution panel and communication lines. Layout drawings shall show the location within the facility or reference to the building and the site plan. Layout drawings shall be half size contract as-built drawings and

shall be inserted into plastic pockets and installed at the back of the O&M's that pertain to that particular drawing.

j. Maintenance Procedures: Recommended procedures shall indicate preventive maintenance, lubrication, and good housekeeping practices which should be performed by operating personnel as well as more complex maintenance procedures which would normally be performed by trained maintenance personnel only. The procedures shall be presented with a schedule indicating time frames or operating hours for specific maintenance to be accomplished. Safety precautions and instructions that should be followed during these procedures shall be incorporated into the maintenance procedures and flagged for the attention of personnel. The procedures shall include necessary operating instructions for taking equipment off line, putting equipment on line, or putting equipment on standby. The instructions shall include all necessary material, equipment, and system data to perform maintenance work and shall include, but not be limited to, manufacturers/bulletins, catalogs, and descriptive data; certified performance curves, copies of approved test plans, including logs and records of performance acceptance test results, and actual adjustments made during final acceptance and inspection; system layouts, including block diagrams, wiring, control, and isometric diagrams; schematic items within the facility; and interrelationships with other items of system.

k. Repairs: Repair procedures shall be presented with a step-by-step procedure for locating and correcting the trouble. A "shop manual" may be used for this purpose. Repair procedures shall be keyed to a troubleshooting guide outlined in three columns with the following headings:

Column 1 - Trouble
Column 2 - Probable Cause(s)
Column 3 - Correction

The procedures shall clearly indicate a major repair activity which should only be performed in a shop or factory versus normal repair work that may be performed onsite or with equipment online. The procedures shall also clearly indicate the limit of repair work that may be performed by Government personnel during the warranty period without voiding warranty provisions. Safety precautions and instructions that should be followed during these procedures shall be incorporated into the repair procedures and flagged for the attention of personnel.

l. Tools: The Contractor shall provide one of each nonstandard tool, test instrument, and gauge necessary for performing maintenance and repair work. A nonstandard tool, test instrument, or gauge is defined as an item normally supplied by the manufacturer for the equipment operation or maintenance. The Contractor shall prepare a master list of such items for all equipment and systems and shall key maintenance and repair procedures to this list. The above referenced items for performing maintenance and repair work shall be provided for each individual facility of multifacility projects.

m. Parts and Supplies: A complete list of parts and supplies shall be provided with the maintenance instructions. The list shall include all parts and components of individual pieces of equipment, and all parts and components of each system and shall identify such items as description of part, model number, circuit or component identification, etc. Parts and supplies lists shall be included within each volume of maintenance instructions. Further, a master list of spare parts and supplies recommended from each manufacturer for 1 year of operation, including source of supply, shall be sublisted with each instruction.

(1) Availability: The Contractor shall list the sources of supply for all parts and supplies, including name of supplier/manufacturer, address, and telephone number. If the parts and supplies are not normally stocked locally, (within 6 hours travel time, round trip by surface transportation) necessary procurement time shall also be a part of the listing.

(2) Spare Parts: The Contractor shall provide those spare parts and supplies that are specified in the TECHNICAL SPECIFICATIONS and those which are normally provided with the equipment or material item. A separate master list shall be provided for these items upon turnover to the Government of the parts and supplies.

n. Maintenance Schedule: A separate schedule of all required periodic maintenance shall be included. This schedule shall list by frequency of occurrence all lubricants and special adjustments required. The types and amounts of lubrication must be specified. The Contractor shall verify that the furnished maintenance schedule agrees with the published manufacturer's data.

3.3.4.1 Architectural/General O&M:

(1) Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products. Data shall include, but not be limited to, information on carpet, floor tile, vinyl wall finishes, builder's hardware, etc.

(2) Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

(3) Moisture-protection and Weather-exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

(4) Additional Requirements: As specified in individual specifications sections.

3.3.4.2 Warranties:

In addition to the general warranty required by the contract, the O&M manuals shall include any specific warranties required by other sections of the TECHNICAL SPECIFICATIONS and other warranties normally provided with the particular piece of equipment or system. Extended warranties normally provided by manufacturers that are beyond the warranty of construction shall be specifically noted. The O&M manuals shall also include a specific warranty section itemizing all standard and extended warranty items. The warranty list shall be as indicated below. Warranties will not begin until the facility is accepted by the Contracting Officer. Copy of warranty shall be included in the manual.

WARRANTY INFORMATION

Project Title
Contract Number

General Contractors Name, Phone Number

<u>ITEM DESCRIPTION</u>	<u>START DATE</u>	<u>END DATE</u>	<u>O & M REFERENCE LOCATION</u>
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(in alphabetical
order)

Descriptive Name,
Manufactures/
Warrantors Name
Address & Phone No.

3.3.4.3 Installed Equipment Lists:

A copy of the completed Equipment in Place forms required in Section 01705 EQUIPMENT-IN-PLACE -LIST shall be included in the manual. The completed forms shall be located at the front of the catalog and O&M data for the equipment listed on the form.

3.3.4.4 Data Layout:

(1) Data Identification: Catalog data shall be marked to clearly identify pertinent data by highlighting the data with pointers or crossing out all nonpertinent data.

(2) Drawings: All drawings bound in the manuals shall be of such size that will require only one fold made right to left. All larger size drawings shall be inserted into a separate pocket in the required location in the manual. All drawings shall be of microfilm quality.

(3) Posted Data: The Contractor shall provide posted data for equipment or systems, in addition to O&M manuals, and as required by other Technical Specifications sections. The data shall consist of as-built schematics of all wiring, controls, piping, etc., as necessary for the operation of the equipment or system, and a condensed typewritten description of the system. The posted data may include approved shop drawings, layout drawings, riser, and block diagrams and shall indicate all necessary interrelation with other equipment and systems. The data may be presented in one or several frames, under glass or sheet acrylic glazing, for clarity and convenience of location. The framed data presentation and outline shall be acceptable to and posted at locations designated by the Contracting Officer. The data shall be posted before personnel training or performance testing acceptance for the related items of equipment or system.

(4) Framed Instructions: Typewritten instructions, framed under glass or sheet acrylic glazing, explaining equipment or system prestart checkout, startup, operations and shutdown procedures, safety precautions, preventive maintenance procedures, and normal operation checks for satisfactory performance of the equipment of systems shall be posted in conjunction with the posted data. The framed instructions may be presented in one or several frames for clarity and convenience of location. The instruction presentation and outline shall be acceptable to the Contracting Officer prior to posting, and shall be posted at locations designated by the Contracting Officer. All framed instructions shall be posted before personnel training or performance testing acceptance commences for the related item of equipment or system.

3.3.5 Checklist

Contractor shall complete and initial a copy of the O&M Manual Check List which is provided at the end of this section, and forwarded along with ENG form 4025 as part of the O&M Manual submittal to the Contracting Officer for approval.

3.3.6 Payment

Payment will be made at the contract lump sum price for Item No. 0008, All Work for O&M Manuals; payment of which shall constitute full compensation of Item No. 0008 complete. No partial or total payment will be made for this item until all O&M manuals are fully approved by the Government (A or B action) and all copies of final manuals are received by the Government in their final binders.

O&M MANUAL - REVIEW CHECKLIST

___ Does the manual cover all equipment furnished under the contract? (Review against equipment schedules on the drawings and/or equipment submittals.)

___ Does the manual clearly highlight all relevant portions or cross out all irrelevant portions of catalog data?

___ Does the manual contain operations data for the equipment? (Step-by-step operating instructions, start up procedures, sequences of operation, precautions.)

___ Does the manual contain maintenance and repair data for the equipment? (Lubrication, dismantling, assembly, adjustment, troubleshooting.)

___ Does the manual contain a separate maintenance schedule listed by frequency of occurrence?

___ Does the manual contain parts lists or parts catalogs for the equipment? Parts catalog or list shall contain identification, part numbers, recommended parts to be stocked, and local source of parts.

___ Does the manual contain electrical connection diagrams?

___ Does the manual contain control and interlock system diagrams where applicable?

___ Is every page in the manual numbered and an index provided for ready reference to the data?

___ Is the cover hard (nonflexible) with the facility name, identification number, location, and system embossed on both the spine and cover? Is the Contractor's name and address, and the contract title and contract number embossed on the inside of the manual cover?

___ Is the binding screw posts or sliding post?

___ Is any of the data in the manual under the binding where it cannot be seen?

___ Do three sets of manuals contain all original data sheets and are others clearly legible?

___ Are system layout drawings provided? (Simplified diagrams for the system as installed.)

___ Are all drawings in the manual of such a size that requires one fold right to left, or if a larger size drawing, then inserted into a pocket in the manual?

Note that the above are common requirements to all contracts. Check the specific contract for additional information.

END OF SECTION

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SECTION 01702

AS BUILT RECORDS AND DRAWINGS

PART 1 GENERAL

1.1 SUBMITTALS

Data listed in PART 3 of this section shall be submitted in accordance with section 01330 SUBMITTAL PROCEDURES. Due dates shall be as indicated in applicable paragraphs and all submittals shall be completed before final payment will be made.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 AS-BUILT FIELD DATA

3.1.1 General

The Contractor shall keep at the construction site two complete sets of full size blue-line prints of the contract drawings, reproduced at Contractor expense, one for the Contractor's use, one for the Government. During construction, both sets of prints shall be marked to show all deviations in actual construction from the contract drawings. The color red shall be used to indicate all additions and green to indicate all deletions. The drawings shall show the following information but not be limited thereto:

- a. The locations and description of any utility lines and other installations of any kind or description known to exist within the construction area. The location includes dimensions and/or survey coordinates to permanent features.
- b. The locations and dimension of any changes within the building or structure, and the accurate location and dimension of all underground utilities and facilities.
- c. Correct grade or alignment of roads, structures, and utilities if any changes were made from contract plans.
- d. Correct elevations if changes were made in site grading from the contract plans.
- e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including, but not limited to, fabrication erection, installation, and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- f. The topography and grades of all drainage installed or affected as part of the project construction.
- g. All changes or modifications from the original design and from the final inspection.
- h. Where contract drawings or specifications allow options, only the option actually used in the construction shall be shown on the as-built drawings. The option not used shall be deleted.

These deviations shall be shown in the same general detail utilized in the contract drawings. Marking of the prints shall be pursued continuously during construction to keep them up to date. In addition, the Contractor shall maintain full size marked-up drawings, survey notes, sketches, nameplate data, pricing information, description, and serial numbers of all installed equipment. This information shall be maintained in a current condition at all times until the completion of the work. The resulting field-marked prints and data shall be referred to and marked as "As-Built Field Data," and shall be used for no other purpose. They shall be made available for inspection by the Contracting Officer's representative whenever requested during construction and shall be jointly inspected for accuracy and completeness by the Contracting Officer's representative and a responsible representative of the Contractor prior to submission of each monthly pay estimate. Failure to keep the As-Built Field Data (including Equipment-in-Place lists) current shall be sufficient justification to withhold a retained percentage from the monthly pay estimate.

3.1.2 Submittal of the As-Built Field Data

Two sets of the As-Built Field Data shall be submitted to the Contracting Officer for review and approval a minimum of 20 calendar days prior to the date of final inspection. If review of the preliminary as-built drawings reveals errors and/or omissions, the drawings will be returned to the Contractor for corrections. The Contractor shall make all corrections and return the drawings for backcheck to the Contracting Officer within 10 calendar days of receipt. When submitted drawings are accepted, one set of marked drawings will be returned to the Contractor for the completion of the as-built drawings.

3.2 AS-BUILT ELECTRONIC FILE DRAWINGS

3.2.1 No later than 30 days after final acceptance a complete set of as-built drawings shall be submitted in AutoCAD electronic file format. The electronic file format, layering standards and submittal requirements are specified in paragraphs below. The as-built drawings shall be done in a quality equal to that of the originals. Line work, line weights, lettering, and use of symbols shall be the same as the original line work, line weights, and lettering, and symbols. If additional drawings are required they shall be prepared in electronic file format under the same guidance. When final revisions have been completed, each drawings shall be identified with the words "AS-BUILT" in block letters at least 3/8-inch high placed above the title block if space permits, or if not, below the title block between the border and the trim line. The date of completion and the words "REVISED AS-BUILT" shall be placed in the revision block above the latest revision notation.

3.2.2 Electronic File Submittal Requirements

3.2.2.1 The AutoCAD electronic file(s) deliverable shall be in AutoCAD release 14 'DWG' binary format. All support files required to display or plot the file(s) in the same manner as they were developed shall be delivered along with the files. These files include but are not limited to Font files, Menu files, Plotter Setup, and Referenced files.

3.2.2.2 Layering shall conform to the guidelines defined by the current version of the A/E/C CADD Standards. An explanatory list of which layer is used at which drawing and an explanatory list of all layers which do not conform to the A/E/C CADD Standards including any user definable fields permitted by the guidelines shall be provided with each submittal.

3.2.2.3 Electronic File Deliverable Media:

All electronic files shall be submitted in ISO 9660 format CD-ROM (CD). Zip drive disks shall not be provided. Two complete sets of CD(s) shall be submitted along with one complete set of 1/2 size prints taken from the CD(s). See paragraph 3.2.4 below. Each CD shall have a clearly marked label stating the Contractor's firm name, project name and location, submittal type (AS-BUILT), and date the CD was made. Each submittal shall be accompanied by a hard copy transmittal sheet that contains the above information along with tabulated information about all files submitted, as shown below:

<u>Electronic File Name</u>	<u>Plate Number</u>	<u>Drawing Title</u>
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Electronic version of the table shall be included with each submittal set of disks.

3.2.3 Submittal of the Final As-Built Drawings

The final as-built record drawings shall be completed and returned together with the approved preliminary as-built drawings to the COE, Seattle District Office, Technical Branch, Records and Information Section, within 30 calendar days of final acceptance. All drawings from the original contract drawings set shall be included, including the drawings where no changes were made. The Government will review all final as-built record drawings for accuracy and conformance to the drafting standards and other requirements contained in DIVISION 1 GENERAL REQUIREMENTS. The drawings will be returned to the Contractor if corrections are necessary. The Contractor shall make all corrections and shall return the drawings to the same office within 7 calendar days of receipt.

3.3 Payment will be made at the contract lump sum price for Item No. 0007, All Work for As-Built Drawings; payment of which shall constitute full compensation of Item No. 0007 complete. No partial or total payment will be made for this item until the as-built drawings, both marked up blue prints and electronic files are fully approved by the Government (A or B action) and all copies of approved drawings and electronic media received by the Government.

3.4 One set of marked-up as-built blueline prints shall be furnished at the time of system acceptance testing. These as-built blueline prints shall be in addition to the submittals of marked-up as-built blueline prints specified elsewhere in the contract.

END OF SECTION

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SECTION 01703

WARRANTY OF CONSTRUCTION

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 – SUBMITTAL PROCEDURES:

Warranty Management Plan

One set of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, e-mail address and telephone number of each of the guarantor's representatives nearest to the project location.

Warranty Tags

Two record copies of the warranty tags showing the layout and design.

1.2 WARRANTY MANAGEMENT

1.2.1 Warranty Management Plan

The Contractor shall develop a warranty management plan that shall contain information relevant to the clause Warranty of Construction in SECTION 00700, CONTRACT CLAUSES. At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. Information to be turned over to a privatized Utility Contractor shall be separately bound. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

- a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact, telephone numbers and e-mail addresses within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.

b. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

c. A list for each warranted equipment, item, feature of construction or system indicating:

1. Name of item.
2. Model and serial numbers.
3. Location where installed.
4. Name and phone numbers of manufacturers or suppliers.
5. Names, addresses, e-mail addresses and telephone numbers of sources of spare parts.
6. Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items that have extended warranties shall be indicated with separate warranty expiration dates.
7. Cross-reference to warranty certificates as applicable.
8. Starting point and duration of warranty period.
9. Summary of maintenance procedures required to continue the warranty in force.
10. Cross-reference to specific pertinent Operation and Maintenance manuals.
11. Organization, names, 24-hour emergency phone numbers and e-mail addresses of persons to call for warranty service.
12. Typical response time and repair time expected for various warranted equipment.

d. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

e. Procedure and status of tagging of all equipment covered by extended warranties.

f. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.2.2 Performance Bond

The Contractor's Performance Bond shall remain effective throughout the construction period.

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

c. Following oral or written notification by the Contracting Officer or his representative of required construction warranty repair work, the Contractor shall respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.2.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number, e-mail address and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact shall be located within the local service area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this contract.

NOTE: Local service area is defined as the area in which the Contractor or his representative can meet the response times as described in paragraph 1.2.4 below and in any event shall not exceed 200 miles radius of the construction site.

1.2.4 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Government or utility owner, the Contractor shall respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period within two working days of repair completion. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. Interim status reports shall be submitted weekly on repairs that have not yet been completed. If the Contractor does not perform the construction warranty work within the timeframes specified, the Government will perform the work and backcharge the Contractor.

a. First Priority Code 1 - Safety/Life & Health/Emergency: Perform onsite inspection to evaluate situation and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

b. Second Priority Code 2 – Property Damage/Severe Inconvenience/Urgent: Perform onsite inspection to evaluate situation and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.

c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.

d. The "Construction Warranty Service Priority List" is as follows (the applicable priority will be determined by the Government in its sole discretion):

Code 1-Air Conditioning Systems

- (1) Recreational support.
- (2) Air conditioning leak in part of building, if causing damage.

- (3) Air conditioning system not cooling properly.

Code 1-Doors

- (1) Overhead doors not operational, causing a security, fire, or safety problem.
- (2) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

Code 3-Doors

- (1) Overhead doors not operational.
- (2) Interior/exterior personnel doors or hardware not functioning properly.

Code 1-Electrical

- (1) Power failure (entire area or any building operational after 1600 hours).
- (2) Security lights
- (3) Smoke detectors
- (4) Traffic signal blackout

Code 2-Electrical

- (1) Power failure (no power to a room or part of building).
- (2) Receptacle and lights, exit lights or emergency lights (in a room or part of building).
- (3) Traffic signal inoperable (flashing)

Code 3-Electrical

Street lights.

Code 1-Gas

- (1) Leaks and breaks.
- (2) No gas to family housing unit or cantonment area.

Code 1-Heat

- (1). Area power failure affecting heat.
- (2). Heater in unit not working.

Code 2-Kitchen Equipment

- (1) Dishwasher not operating properly.
- (2) Any other equipment hampering preparation of a meal.

Code 1-Plumbing

- (1) Hot water heater failure.
- (2) Leaking water supply pipes.
- (3) Fire sprinkler systems

Code 2-Plumbing

- (1) Flush valves not operating properly.
- (2) Fixture drain, supply line to commode, or any water pipe leaking.
- (3) Commode leaking at base.

Code 3 -Plumbing

Leaky faucets.

Code 3-Interior

- (1) Floors damaged.
- (2) Paint chipping or peeling.
- (3) Casework.

Code 1-Roof Leaks

Temporary repairs shall be made where major damage to property is occurring.

Code 2-Roof Leaks

Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 1-Water (Exterior)

- (1) No water to a building with sanitary facilities.
- (2) Broken water main.

Code 2-Water (Exterior)

No water to facility.

Code 2-Water (Hot)

No hot water in portion of building listed.

Code 1 – Sewerage

- (1) Sewage line backup.
- (2) Broken sanitary or storm sewer main

Code 3-All other work not listed above.

1.2.5 Warranty Tags

At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the Contracting Officer. Each tag shall be attached with a copper wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the QC signature shall remain blank until project is accepted for beneficial occupancy. The tag shall show the following information.

- a. Type of product/material _____.
- b. Model number _____.
- c. Serial number _____.
- d. Contract number _____.
- e. Warranty period _____ from _____ to _____.
- f. Contractor Inspector's (QC) signature _____.
- g. Construction Contractor _____.
- Address _____.

Telephone number_____.

E-mail address_____.

h. Warranty contact_____.

Address_____.

Telephone number_____.

E-mail address_____.

i. Warranty response time priority code_____.

END OF SECTION

SECTION 01704
FORM 1354 CHECKLIST

PART 1 GENERAL

1.1 Procedures

The form, which is a part of this specification section, shall be completed for any project having revisions to real property. The following page contains the basic instructions applicable to the form.

1.2 Submittal

This form shall be submitted for approval, and be approved a minimum of 30 days before final inspection of the project. Failure to have this form completed and approved in time for the final inspection will result in delay of the inspection until the checklist is completed.

1.3 Payment

Payment will be made at the contract lump sum price for Item No. 0009, All Work for Form 1354 Checklist and Equipment in Place List; payment of which shall constitute full compensation of Item No. 0009 complete. No partial or total payment will be made for this item until both the 1354 Checklist and Equipment in Place List are fully approved by the Government (A or B action) and all copies of approved lists received by the Government.

PARTS 2 AND 3 NOT USED

INSTRUCTIONS FOR DD FORM 1354 CHECKLIST

The following checklist is only a guide to describe various parts of new and modified construction. Alter this form as necessary or create your own document to give complete accounting of the real property added or deleted for this contract. All items added, deleted, replaced, or relocated within the building 1.5 meter (5 foot line), or on site 1.5 meters (5 feet) beyond the building perimeter must be accounted for completely. Only a few of the most common items beyond the 1.5 meter (5 foot) line are included on the checklist under UTILITIES/SURFACE CONSTRUCTION, add additional items as required by the construction accomplished.. Attach a continuation sheet and use the checklist format to describe other work related to this particular project. Listed on the last page are additional items with units of measure and descriptive terms.

Costs for each item must include material, tax, installation, overhead and profit, bond and insurance costs. This form should be filled out as each item is installed or each phase of work is completed.

TOTAL FOR ALL ITEMS INCLUDING CONTRACT MODIFICATION COSTS ADDED TOGETHER SHOULD EQUAL THE TOTAL CONTRACT PRICE.

NOTE: USE METRIC UNITS OF MEASURE INSTEAD OF ENGLISH UNITS SHOWN.

KEY TO ABBREVIATIONS

AC - Acres
BL - Barrels, Capacity
BTU - British Thermal Unit
CY - Cubic Yards
EA - Each
GA - Gallons, Capacity
HD - Head
kV - Kilovolt-Amperes, Capacity (kVA)
kW - Kilowatts, Capacity
SE - Seats
SF - Square Feet
SY - Square Yard
MB - Million British Thermal Units
MI - Miles
LF - Linear Feet
KG - Thousand Gallons Per Day, Capacity
TN - Ton
- Number; How Many

DD FORM 1354 CHECKLIST
Transfer of Real Property

**CONTRACT
NUMBER:** _____

**CONTRACT
TITLE:** _____

LOCATION: _____

1. **DEMOLITION** (Describe each item removed and the cost of removal.)*

2. **RELOCATION** (Describe each item relocated and the cost of relocation.)*

3. **REPLACEMENTS** (Describe each item replaced and replacement cost.)*

*Use a continuation sheet if more space is required. Items should be described by quantity and the correct unit of measure.

4. NEW CONSTRUCTION OVERVIEW: BUILDING(S)/ADDITION(S) TO A BUILDING - Use a separate checklist for each building and/or addition.

(1) Outside Dimensions: Length x Width

- (a) Main Building _____
- (b) Offsets _____
- (c) Wings _____
- (d) Basement _____
- (e) Attic _____

(2) Number of Usable Floors: _____

(3) Construction: Exterior Materials Used

- (a) Foundation (such as concrete) _____
- (b) Floors (such as wood, concrete) _____
- (c) Walls (such as wood siding, metal, CMU) _____
- (d) Roof (such as metal, comp., built-up) _____

(4) Utilities ENTERING Building: Measure lineal meters (LF) from building entry to next larger size of pipe

- (a) Water (size & type of pipe; number of lineal meters (LF)) _____
- (b) Gas (size & type of pipe; number of lineal meters (LF)) _____
- (c) Sewer (size & type of pipe; number of lineal meters (LF)) _____
- (d) Electric (phase, voltage, size & type of wire, connected load in amps) _____

(5) Air Conditioning:

- (a) Type _____
- (b) _____ Capacity _____ Kilograms
- (TONS) _____
- (c) _____ SQ METERS (SQ YDS) covered by
- system _____

(6) Heating:

- (a) Source _____
- (b) Fuel _____

(7) Hot Water Facilities:

- (a) Capacity Liters (GAL) _____
(b) Temperature Rise _____

BUILDING COST: _____

5. BUILDING SYSTEMS (INTERIOR)

A. FIRE PROTECTION:

Property Code

- (1) (880 50/880-211) CLOSED HEAD AUTO SPRINKLERS - Square Meters (SF) & HD (wet or dry pipe; # of Lineal Meters (LF) of service pipe; type of pipe & # of heads; # of Square Meters (SF) covered by system)

DESCRIPTION:

COST: _____

- (2) (880 50/880-212) OPEN HEAD DELUGE SYSTEM - Square Meters (SF) & HD (# of Lineal Meters (LF) of service pipe; type of pipe; # of heads; # of Square Meters (SF) covered)

DESCRIPTION:

COST: _____

- (3) (880 10/880-221) AUTO FIRE DETECTION SYSTEM - Square Meters (SF) & EA (# of alarms-horns, bells, etc.; # of smoke detectors; # of heat detectors; # of fire alarm panels; # of radio transmitters/antennae)

DESCRIPTION:

COST: _____

- (4) (880 20/880-222) MANUAL FIRE ALARM SYSTEM - EA (# of pull stations; # of alarm horns; # of fire extinguisher cabinets)

DESCRIPTION:

COST: _____

(5) (880 60/880-231) CO2 FIRE SYSTEM (# of bottles & size of bottles in kilograms (lbs.))
DESCRIPTION:

COST: _____

(6) (880 60/880-232) FOAM FIRE SYSTEM - EA (# of tanks - capacity in kilograms (lbs.))
DESCRIPTION:

COST: _____

(7) (880 60/880-233) OTHER FIRE SYSTEM - EA
DESCRIPTION:

COST: _____

(8) (880 60/880-234) HALON 1301 FIRE SYSTEM - EA (# of bottles & size of bottles in kilograms (lbs.))
DESCRIPTION:

COST: _____

B. SECURITY:

(1) (880 40/872-841) SECURITY ALARM SYSTEM - EA (name of system installed)
DESCRIPTION:

COST: _____

C. HEATING/COOLING SYSTEMS

(1) (826 10/890-126) A/C WINDOW UNITS - kilograms (TN) & Square Meters (SF)-(# of units installed; amount of Square Meters (SF) covered per unit; size & capacity of each unit)
DESCRIPTION:

COST: _____

(2) (826 14/890-125) A/C PLT LESS THAN 4,536 kilograms (5 TN) - kilograms (TN) & square meters (SF)-(# of kilograms (TN); # of square meters (SF) covered)
DESCRIPTION:

COST: _____

(3) (826 13/890-121) A/C PLT 4,536 to 22,680 kilograms (5 TO 25 TN) - kilograms (TN)-(# of kilograms (TN); # of square meters (SF) covered)
DESCRIPTION:

COST: _____

(4) (826 12/826-122) A/C PLT 22,680 to 2,267,962 kilograms (25 TO 100 TN) - kilograms (TN)-(# of kilograms (TN); # of square meters (SF) covered)
DESCRIPTION:

COST: _____

(5) (826 11/826-123) A/C PLT OVER 2,267,962 kilograms (100 TN) - kilograms (TN)-(# of kilograms (TN); # of square meters (SF) covered)
DESCRIPTION:

COST: _____

(6) (821 33/821-115) HEATING PLT 220/1026 W (750/3500 MB) - W (MB)-(# of kW (MBH); type of heating system - Ex: Warm air furnace, central)
DESCRIPTION:

COST: _____

(7) (821 32/821-116) HEATING PLT OVER 1026 W (3500 MB) - W(MB)-(# of kW (MBH); type of heating system)
DESCRIPTION:

COST: _____

(8) (811 60/811-147) ELEC EMERGENCY POWER GENERATOR-KW-(size of engine;
rating of generator in kilowatts & voltage)
DESCRIPTION:

COST: _____

(9) (81190 or 82320-gas) STORAGE TANK FOR HEATING or GENERATOR FUEL-Liters
(GA); TYPE; FUEL-(Size, type of tank, kind of fuel & # of liters (gallons))
DESCRIPTION:

COST: _____

(10) (89220/890-272) EMCS – EA (Direct Digital Control Sys)

COST: _____

SITE WORK

6. UTILITIES/SURFACE CONSTRUCTION:

(1) (812 41/812-223) PRIM DISTR LINE OH-Lineal Meters (LF)-(# Lineal Meters (LF) of wire;
size & type of wire; # of poles; voltage)
DESCRIPTION:

COST: _____

(2) (812/81360) TRANSFORMERS-KVA
POWER POLES-Lineal Meters (LF)
(# poles; # transformers - pad or pole mounted; kVA of wire; # Lineal Meters (LF) of wire)
DESCRIPTION:

COST: _____

(3) (812 40/812-224) SEC DISTR LINE OH-Lineal Meters (LF)-(voltage; size & type of wire; # transformers; kVA; # Lineal Meters (LF) of wire; # of service drops; # poles)
DESCRIPTION:

COST: _____

(4) (812 42/812-225) PRIM DISTR LINE UG-Lineal Meters (LF)-(kVA; voltage; type of conduit & size(encased or direct burial); size & kind of wire inside conduit; Lineal Meters (LF) of wire & conduit)
DESCRIPTION:

COST: _____

(5) (812 42/812-226) SEC DISTR LINE UG-Lineal Meters (LF)-(type of conduit & size; type & size of wires in conduit; Lineal Meters (LF) of conduit & wire inside conduit; voltage)
DESCRIPTION:

COST: _____

(6) (812 30/812-926) EXTERIOR LIGHTING-EA-(streets or parking area lights) (# & type of lights; whether pole mounted or not; # Lineal Meters (LF) of connecting wire if pole mounted)
DESCRIPTION:

COST: _____

(7) (824 10/824-464) GAS MAINS-Lineal Meters (LF) (size, type, & # of Lineal Meters (LF) of pipe)
DESCRIPTION:

COST: _____

(8) (831 90/831-169) SEWAGE SEPTIC TANK-thousand liters (KG)-(size, kind of material, & capacity)
DESCRIPTION:

COST: _____

(9) (832 10/832-266) SANITARY SEWER-Lineal Meters (LF)-(sizes & types of pipes - # of Lineal Meters (LF) of each; # of cleanouts; # & size of manholes)
DESCRIPTION:

COST: _____

(10) (842 10/842-245) WATER DISTR MAINS (POTABLE)-Lineal Meters (LF)-(# Lineal Meters (LF) & size, type of pipe)
DESCRIPTION:

COST: _____

(11) (843 11/843-315) FIRE HYDRANTS-EA-(#; size & type)
DESCRIPTION:

COST: _____

(12) (851 90/851-143) CURBS & GUTTERS-Lineal Meters (LF)-(# Lineal Meters (LF); material; width & height)
DESCRIPTION: (Is curb extruded or standard?)_

COST: _____

(13) (851 90/851-145) DRIVEWAY-Square Meters (SY)-Square Meters (SY); material used; thickness)
DESCRIPTION:

COST: _____

(14) (851 10/12/851-147) ROAD-Square Meters (SY) & Lineal Meters (LF)-Square Meters (SY); material used; thickness; Lineal Meters (LF))
DESCRIPTION:

COST: _____

(15) (85210/11 /852-262) VEHICLE PARKING-Square Meters (SY)-Square Meters (SY); material used; thickness; # of bollards; # of wheel stops; # of regular parking spaces; # of handicap spaces)
DESCRIPTION:

COST: _____

(16) (852 20/852-289) SIDEWALKS-Square Meters (SY) & Lineal Meters (LF)-(# Square Meters (SF) & Lineal Meters (LF); dimensions of each section & location; thickness; material used)
DESCRIPTION:

COST: _____

(17) (871 10/871-183) STORM DRAIN DISPOSAL-Lineal Meters (LF)-(# Lineal Meters (LF) of pipe; sizes & types of pipe; # of catch basins & manholes & sizes of each)
DESCRIPTION:

COST: _____

(18) (872 15/872-247) FENCE, SECURITY (ARMS)-Lineal Meters (LF)-(# of Lineal Meters (LF); fence material; # & type of gate(s); # strands of barbed wire on top)
DESCRIPTION:

COST: _____

(19) (87210/12/872-248) FENCE, INTERIOR-Lineal Meters (LF)-(# of Lineal Meters (LF); fence material; # & kind of gate(s)
DESCRIPTION:

COST: _____

(20) (890 70/890-187) UTILITY VAULT(4 or more transformers)- Square Meters (SF) (# Square Meters (SF); dimensions of vault; # of transformers)
DESCRIPTION:

COST: _____

(21) (135 10/135-583) TEL DUCT FACILITY-Lineal Meters (LF)-(# of Lineal Meters (LF); size & type of conduit; type of wire)

DESCRIPTION:

COST: _____

(22) (135 10/135-586) TEL POLE FACILITY-Lineal Meters (LF)-(# Lineal Meters (LF) & type of wire; # of poles)

DESCRIPTION:

COST: _____

7. **INSTALLED EQUIPMENT:** Furnish an Equipment-In-Place List. Any price related to equipment should already be included in this checklist.

8. **SYSTEMS NOT PREVIOUSLY LISTED:** Attach a separate sheet and use the same format to describe the system(s). Example: CATV system, intercom system, or other utilities and surface construction not described on this checklist.

9. **ASBESTOS REMOVAL:** Furnish a description by building of the number of Lineal Meters (LF) of asbestos removed, number of Lineal Meters (LF) of reinsulation, number of Square Meters (SF) of soil encapsulation, and number and size of tanks, etc., where asbestos was removed. Also, identify buildings by their numbers and use.

10. **MAINTENANCE/RENOVATIONS:** List by building number and describe all additions and deletions by quantity and the correct unit of measure. Furnish a cost per building.

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UTILITIES/SURFACE CONSTRUCTION - Listed below are some additional items which may or may not apply to your contract. EACH item installed on site should be listed and priced separately even if not included on this checklist.

- (1) IRRIGATION SYSTEM(-Lineal Meters (LF) of pipe; size & type of pipe; number and type of heads)
- (2) UNDERGROUND/ABOVEGROUND STORAGE TANKS(-Liters (GA), type of tank; material stored)
- (3) (833-354) DUMPSTER ENCLOSURE(-Square Meters (SF) & dimensions)
- (4) (890-152) UNLOADING PAD(-Square Meters (SY); material)
- (5) SIGNAGE-(Dimensions; material)
- (6) (12580) CATHODIC PROTECTION(kilometers; Lineal Feet) (MI; LF)
- (7) (87270) LIGHTNING PROTECTION-Lineal Feet (LF)
- (8) (81290) POLE DUCT RISER(-Lineal Feet (LF, type of material)
- (9) RAMPS-Square Meters (SF), material; Cubic Meters (CY) if concrete-use code for sidewalk if concrete)
- (10) (89080/890-158) LOAD AND UNLOAD PLATFORM-Square Meters (SF)
- (11) (83240/832-255) INDUSTRIAL WASTE MAIN-Lineal Meters (LF)
- (12) WHEEL STOPS-(EA; size & material)
- (13) (81350) OUTDOOR INTEGRAL DISTR CTR-(kVA)
- (14) (45110) OUTDOOR STORAGE AREA-Square Meters (SF)
- (15) (73055/730-275) BUS/WAIT SHELTER-Square Meters (SF)
- (16) (690-432) FLAGPOLE-(EA; dimensions)
- (17) (93210) SITE IMPROVEMENT-(JOB)
- (18) (93220) LANDSCAPE PLANTING (Hectare (Acre); EA; Square Meters (SF))
- (19) (93230) LANDSCAPE BERMS/MOUNDS-Square Meters (SY)
- (20) (93410) CUT AND FILL-Cubic Meters (CY)
- (21) (843-315) FIRE HYDRANTS-(EA; Type)
- (22) (14970) LOADING AND UNLOADING DOCKS AND RAMPS (not connected to a building)-Square Meters (SF) (23) BICYCLE RACK-(EA)
- (24) (85140/812-928) TRAFFIC SIGNALS-(EA)
- (25) (87210) FENCING OR WALLS-Lineal Meters (LF)
- (26) (15432) RIPRAP-Lineal Meters & Square Meters (LF & SY)
- (27) (75061) GRANDSTAND OR BLEACHERS-(EA; SE)
- (28) 87150/871-187) RETAINING WALLS-Lineal Meters; Square Meters (LF; SY); material

NOTE: 5 Digit Codes-Army; 6 Digit Codes-Air Force

END OF SECTION

SECTION 01705

EQUIPMENT-IN-PLACE LIST

PART 1 GENERAL

1.1 SUBMITTALS

Data listed in PART 3 of this section shall be submitted in accordance with section 01330 SUBMITTAL PROCEDURES. Due dates shall be as indicated in applicable paragraphs and all submittals shall be completed before final payment will be made.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 Submittal:

The final equipment-in-place list shall be completed and returned to the Contracting Officer 45 calendar days prior to the final inspection. The Contracting Officer will review all final Equipment-In-Place Lists for accuracy and conformance to the requirements contained in DIVISION 1 GENERAL REQUIREMENTS. The lists shall be returned to the Contractor if corrections are necessary. The Contractor shall make all corrections and shall return the lists to the Contracting Officer within 7 calendar days of receipt.

3.2 EQUIPMENT-IN-PLACE LIST:

Contractor shall submit for approval, at the completion of construction, a list of equipment-in-place. This list shall be updated and kept current throughout construction, and shall be jointly inspected for accuracy and completeness by the Contracting Officer's representative and a responsible representative of the Contractor prior to submission of each monthly pay estimate. A sample form showing minimum data required is provided at the end of this section. The EQUIPMENT-IN-PLACE LIST shall be comprised of all equipment falling under one or more of the following classifications:

- a. Each piece of equipment listed on the mechanical equipment schedules.
- b. Each electrical panel, switchboard, and MCC panel.
- c. Each transformer.
- d. Each piece of equipment or furniture designed to be movable.
- e. Each piece of equipment that contains a manufacturer's serial number on the name plate.
- f. All Government furnished, Contractor installed equipment per a. through e. (price data excluded)

This information shall be listed in the RMS CQC Module furnished by the Government under the "Installed Property" menu selection.

3.3 PAYMENT:

All costs incurred by the Contractor in the preparation and furnishing of Equipment-In-Place Lists shall be included in the contract price and no separate payment will be made for this work. Approval and acceptance of the final Equipment-In Place Lists shall be accomplished before final payment is made to the Contractor.

EQUIPMENT-IN-PLACE LIST

CONTRACT NO.: _____

Specification Section: _____ Paragraph No. _____

ITEM DESCRIPTION: _____

Item Name: _____

Serial Number: _____

Model Number: _____

Capacity: _____ Replacement Cost _____

ITEM LOCATION:

Building Number: _____ Room Number: _____

or Column Location: _____

MANUFACTURER INFORMATION:

Manufacturer Name: _____

Trade Name (if
different from item name): _____

Manufacturer's Address: _____

Telephone Number: _____

WARRANTY PERIOD: _____

CHECKED BY: _____

END OF SECTION

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SECTION 13721

INTRUSION DETECTION SYSTEM

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

DEPARTMENT OF THE ARMY REGULATIONS

AR 190-11 Physical Security of Arms, Ammunition and Explosives

CODE OF FEDERAL REGULATIONS (CFR)

47 CFR 15 Radio Frequency Devices

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE C2 (2002) National Electrical Safety Code

IEEE C62.41 (1991; R 1995) Surge Voltages in Low-Voltage AC
Power Circuits

IEEE Std 100 (1997) IEEE Standard Dictionary of Electrical and
Electronics Terms

IEEE Std 142 (1991) IEEE Recommended Practice for Grounding of
Industrial and Commercial Power Systems

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA 250 (1997) Enclosures for Electrical Equipment (1000 Volts
Maximum)

NEMA ICS 1 (1993) Industrial Control and Systems

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (2002) National Electrical Code

UNDERWRITERS LABORATORIES (UL)

UL 294 (1999) Access Control System Units

UL 639 (1997; Rev thru Mar 1999) Intrusion Detection Units

UL 681 (1999) Installation and Classification of Burglar and
Holdup Alarm Systems

UL 796	(1999) Printed-Wiring Boards
UL 1037	(1999) Antitheft Alarms and Devices
UL 1076	(1995; Rev thru Feb 1999) Proprietary Burglar Alarm Units and Systems

1.2 SYSTEM DESCRIPTION

1.2.1 General

The Contractor shall configure the Intrusion Detection System (IDS) as described and shown. Computing devices, as defined in 47 CFR 15, shall be certified to comply with the requirements for Class A computing devices and labeled as set forth in 47 CFR 15.

The installed system shall be the Integrated Commercial Intrusion Detection System II (ICIDS II; commercial name Safenet, Manufactured by MDI, Inc (9518 Ninth Street, Rancho Cucamonga, CA 91730, 909-944-4652, www.mdisecure.com). The system shall include a Safenet Remote Terminal Unit (RTU) [and a Safenet Pre-Processor Unit (PPU) by MDI Security Systems (MDI). The system shall use the OS2 operating system and shall be fully compatible with the existing ICIDS II security system at Ft Lewis. Work includes updating input points and graphics at the central monitoring station to provide a turnkey system identical to accounts already established.

1.2.3 Definitions

1.2.3.1 Intrusion Alarm

An alarm resulting from the detection of a specified target and which results in an attempt to intrude into the protected area or when entry into an entry controlled area is attempted without successfully using entry control procedures.

1.2.3.2 Nuisance Alarm

An alarm resulting from the detection of an alarm stimuli, but which does not represent an attempt to intrude into the protected area.

1.2.3.3 Environmental Alarm

An alarm during environmental conditions which exceed those specified.

1.2.3.4 False Alarm

An alarm when there is no intrusion alarm stimulus.

1.2.3.5 Duress Alarm

An alarm condition which results from a set of pre-established conditions such as entering a special code into a keypad or by activating a switch. This alarm category shall take precedence over other alarm categories.

1.2.4 Probability of Detection

Each zone shall have a continuous probability of detection greater than 90 percent and shall be demonstrated with a confidence level of 95 percent. This probability of detection equates to 49 successful detections out of 50 tests or 98 successful detections out of 100 tests.

1.2.5 Standard Intruder and Intruder Movement

The system shall be able to detect an intruder that weighs 45 kg (100 pounds) or less and is 1.5 m (5 feet) tall or less. The intruder shall be dressed in a long-sleeved shirt, slacks and shoes unless environmental conditions at the site require protective clothing. Standard intruder movement is defined as any movement such as walking, running, crawling, rolling, or jumping through a protected zone in the most advantageous manner for the intruder.

1.2.6 Electrical Requirements

Electrically powered IDS equipment shall operate on 120 or 240 volt 60 Hz AC sources as shown. Equipment shall be able to tolerate variations in the voltage source of plus or minus 10 percent, and variations in the line frequency of plus or minus 2 percent with no degradation of performance.

1.2.7 Power Line Surge Protection

Equipment connected to alternating current circuits shall be protected from power line surges. Equipment protection shall withstand surge test waveforms described in IEEE C62.41. Fuses shall not be used for surge protection.

1.2.8 Sensor Wiring and Communication Circuit Surge Protection

Inputs shall be protected against surges induced on sensor wiring. Outputs shall be protected against surges induced on control and sensor wiring installed outdoors and as shown. All communications equipment shall be protected against surges induced on any communications circuit. All cables and conductors, except fiber optics, which serve as communications circuits from the console to field equipment, and between field equipment, shall have surge protection circuits installed at each end. Protection shall be furnished at equipment, and additional triple electrode gas surge protectors rated for the application on each wireline circuit shall be installed within 900 mm (3 feet) of the building cable entrance. Fuses shall not be used for surge protection. The inputs and outputs shall be tested in both normal mode and common mode using the following two waveforms:

- a. A 10 microsecond rise time by 1000 microsecond pulse width waveform with a peak voltage of 1500 volts and a peak current of 60 amperes.
- b. An 8 microsecond rise time by 20 microsecond pulse width waveform with a peak voltage of 1000 volts and a peak current of 500 amperes.

1.2.9 Environmental Conditions

1.2.9.1 Interior, Controlled Environment

All system components, except the console, installed in interior locations having controlled environments shall be rated for continuous operation under ambient environmental conditions of 2 to 50 degrees C (36 to 122 degrees F) dry bulb and 20 to 90 percent relative humidity, noncondensing.

1.2.9.2 Interior, Uncontrolled Environment

All system components installed in interior locations having uncontrolled environments shall be rated for continuous operation under ambient environmental conditions of minus 18 to plus 50 degrees C (0 to 122 degrees F) dry bulb and 10 to 95 percent relative humidity, noncondensing.

1.2.9.3 Exterior Environment

System components that are installed in locations exposed to weather shall be rated for continuous operation under ambient environmental conditions of minus 34 degrees to 50 degrees C (minus 30 to 122 degrees F) dry bulb and 10 to 95 percent relative humidity, condensing. In addition, the system components shall be rated for continuous operation when exposed to performance conditions as specified in UL 294 and UL 639 for outdoor use equipment. In addition, components shall be rated for continuous operation when exposed to rain as specified in NEMA 250, winds up to 137 km per hr (85 mph) and snow cover up to 610 mm(2 feet) thick, measured vertically.

1.2.9.4 Hazardous Environment

System components located in areas where fire or explosion hazards may exist because of flammable gases or vapors, flammable liquids, combustible dust, or ignitable fibers or flyings, shall be rated and installed according to Chapter 5 of NFPA 70 and as shown.

1.2.10 System Capacity

The system shall monitor and control the number of inputs and outputs shown and shall include an expansion capability of a minimum of 25 percent.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Intrusion Detection System ; G

- a. System block diagram.

- b. Processor installation, typical block, and wiring diagrams.
- c. Details of connections to power sources, including power supplies and grounding.
- d. Details of surge protection device installation.
- e. Sensor detection patterns.
- f. The qualifications of the Manufacturer, Contractor, and Installer to perform the work specified herein.

Key Control Plan ; G

Key control plan including the following:

- a. Procedures that will be used to log and positively control all keys during installation.
- b. A listing of all keys and where they are used.
- c. A listing of all persons allowed entry to the keys.
- d. Keys shall be submitted to the contracting officer's representative at contract completion.

Spare Parts ; G

Data lists of spare parts, tools, and test equipment for each different item of material and equipment specified, after approval of detail drawings and not later than 2 months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply, and a list of the parts recommended for stocking.

Manufacturer's Instructions ; G

Printed copies of manufacturer's recommendations for installation of materials prior to installation. Where installation procedures, or any part thereof, are required to be in accordance with manufacturer's recommendations, installation of the item will not be allowed to proceed until the recommendations are received and approved.

Testing ; G

Test plan defining all tests required to ensure that the system meets technical, operational and performance specifications, 60 days prior to proposed test date. The test plan must be approved before the start of any testing. The test plan shall identify the capabilities and functions to be tested, and include detailed instructions for the setup and execution of each test and procedures for evaluation and documentation of the results.

Experience

Contractor and employees must be certified SAFENET integrators by MDI, Inc and have experience with installing SAFENET systems. Written proof of specified experience requirements.

SD-06 Test Reports

Performance Verification Test

Test reports, in booklet form with witness signatures verifying execution of tests. Reports shall show the field tests to verify compliance with the specified performance criteria. Test reports shall include records of the physical parameters verified during testing. Test reports shall be submitted within 7 days after completion of testing.

Materials and Equipment ; G

Where materials or equipment are specified to conform, be constructed or tested to meet specific requirements, certification that the items provided conform to such requirements. Certification by a nationally recognized testing laboratory that a representative sample has been tested to meet the requirements, or a published catalog specification statement to the effect that the item meets the referenced standard, will be acceptable as evidence that the item conforms. Compliance with these requirements does not relieve the Contractor from compliance with other requirements of the specifications.

1.4 TESTING

The Contractor shall perform site testing and adjustment of the completed intrusion detection system. The Contractor shall provide all personnel, equipment, instrumentation, and supplies necessary to perform all testing. Written notification of planned testing shall be given to the Government at least 14 days prior to the test, and in no case shall notice be given until after the Contractor has received written approval of the specific test procedures.

1.5 EXPERIENCE

The Contractor shall submit written proof that the following experience requirements are being met.

1.5.1 System Installer

The system shall be installed by a contractor who has been regularly engaged in the installation of intrusion detection systems of similar type and complexity as the specified system for at least 2 years.

Contractor and employees must be certified SAFENET integrators by MDI Security Systems and have experience with installing SAFENET systems.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

2.1.1 Materials and Equipment

Units of the same type of equipment shall be products of a single manufacturer. All material and equipment shall be new and currently in production. Each major component of equipment shall have the manufacturer's model and serial number in a conspicuous place.

2.1.2 Enclosures

System enclosures shall be as shown.

2.1.2.1 Interior Sensor

Sensors to be used in an interior environment shall be housed in an enclosure that provides protection against dust, falling dirt, and dripping noncorrosive liquids.

2.1.2.2 Interior Electronics

System electronics to be used in an interior environment shall be housed in enclosures which meet the requirements of NEMA 250 Type 12.

2.1.2.3 Exterior Electronics

System electronics to be used in an exterior environment shall be housed in enclosures which meet the requirements of NEMA 250 Type 4X.

2.1.2.4 Corrosion Resistant

System electronics to be used in a corrosive environment as defined in NEMA 250 shall be housed in an enclosure which meet the requirements of NEMA 250 Type 4X.

2.1.2.5 Hazardous Environment Equipment

System electronics to be used in a hazardous environment shall be housed in an enclosure which meets the requirements of paragraph Hazardous Environment.

2.1.3 Nameplates

Laminated plastic nameplates shall be provided for local processors. Each nameplate shall identify the local processor and its location within the system. Laminated plastic shall be 3 mm (1/8 inch) thick, white with black center core. Nameplates shall be a minimum of 25 by 75 mm, (1 by 3 inches,) with minimum 6 mm (1/4 inch) high engraved block lettering. Nameplates shall be attached to the inside of the enclosure housing the local processor. Other major components of the system shall have the manufacturer's name, address, type or style, model or serial number, and catalog number on a corrosion resistant plate secured to the item of equipment. Nameplates will not be required for devices smaller than 25 by 75 mm. (1 by 3 inches.)

2.1.4 Fungus Treatment

System components located in fungus growth inductive environments shall be completely treated for fungus resistance. Treating materials containing a mercury bearing fungicide shall not be used. Treating materials shall not increase the flammability of the material or surface being treated. Treating materials shall cause no skin irritation or other injury to personnel handling it during fabrication, transportation, operation, or maintenance of the equipment, or during use of the finished items when used for the purpose intended.

2.1.5 Tamper Provisions

2.1.5.1 Tamper Switches

Enclosures, cabinets, housings, boxes, and fittings of every description having hinged doors or removable covers and which contain circuits or connections of the intrusion detection system and its power supplies, shall be provided with cover operated, corrosion-resistant tamper switches, arranged to initiate an alarm signal when the door or cover is moved. The enclosure and the tamper switch shall function together in such a manner as to not allow direct line of sight to any internal components before the switch activates. Tamper switches shall be inaccessible until the switch is activated; have mounting hardware so concealed that the location of the switch cannot be observed from the exterior of the enclosure; be connected to circuits which are under electrical supervision at all times, irrespective of the protection mode in which the circuit is operating; shall be spring-loaded and held in the closed position by the door or cover; and shall be wired so that they break the circuit when the door or cover is disturbed.

- a. Nonsensor Enclosures: Tamper switches on nonsensor enclosures, which must be opened to make routine maintenance adjustments to the system and to service the power supplies, shall be push/pull-set, automatic reset type.
- b. Sensor Enclosures: Tamper switches on sensor enclosures, which must be opened to make routine maintenance adjustments to the sensor, shall be single pole single throw type.

2.1.5.2 Enclosure Covers

Covers of pull and junction boxes provided to facilitate initial installation of the system need not be provided with tamper switches if they contain no splices or connections, but shall be protected by tack welding or brazing the covers in place or by tamper resistant security fasteners. Labels shall be affixed to such boxes indicating they contain no connections.

2.1.6 Locks and Key-Lock Switches

2.1.6.1 Locks

Locks shall be installed on system enclosures for maintenance purposes. Locks shall be UL listed, conventional key type lock having a combination of five cylinder pin and five-point three position side bar. Keys shall be stamped "U.S. GOVT. DO NOT DUP." The locks shall be so arranged that the key can only be withdrawn when in the locked position. All maintenance locks shall be keyed alike and only two keys shall be furnished for all of these locks. These keys shall be controlled in accordance with the key control plan.

2.1.6.2 Key-Lock-Operated Switches

All key-lock-operated switches required to be installed on system components shall be UL listed, [round-key type, with three dual, one mushroom, and three plain pin tumblers] [or] [conventional key type lock having a combination of five cylinder pin and five-point three position side bar]. Keys shall be stamped "U.S. GOVT. DO NOT DUP." Key-lock-operated switches shall be two position, with the key removable in either position. All key-lock-operated switches shall be keyed differently and only two keys shall be furnished for each key-lock-operated-switch. These keys shall be controlled in accordance with the key control plan.

2.1.6.3 Construction Locks

If the Contractor requires locks during installation and construction, a set of temporary locks shall be used. The final set of locks installed and delivered to the Government shall not include any of the temporary locks.

2.1.7 Application of System Component

System components shall be designed for continuous operation. Electronic components shall be solid state type, mounted on printed circuit boards conforming to UL 796. Printed circuit board connectors shall be plug-in, quick-disconnect type. Power dissipating components shall incorporate safety margins of not less than 25 percent with respect to dissipation ratings, maximum voltages, and current carrying capacity. Light duty relays and similar switching devices shall be solid state type or sealed electro-mechanical.

2.1.7.1 Maintainability

Components shall be designed to be maintained using commercially available tools and equipment. Components shall be arranged and assembled so they are accessible to maintenance personnel. There shall be no degradation in tamper protection, structural integrity, EMI/RFI attenuation, or line supervision after maintenance when it is performed in accordance with manufacturer's instructions. The system shall be configured and installed to yield a mean time to repair (MTTR) of not more than 8 hours. Repair time is the clock time from the time maintenance personnel are given entrance to the system and begin work, until the system is fully functional.

2.1.7.2 Interchangeability

The system shall be constructed with off-the-shelf components which are physically, electrically and functionally interchangeable with equivalent components as complete items. Replacement of equivalent components shall not require modification of either the new component or of other components with which the replacement items are used. Custom designed or one-of-a-kind items shall not be used. Interchangeable components or modules shall not require trial and error matching in order to meet integrated system requirements, system accuracy, or restore complete system functionality.

2.1.7.3 Electromagnetic and Radio Frequency Interference (EMI/RFI)

System components generating EMI/RFI shall be designed and constructed in accordance with 47 CFR 15.

2.1.7.4 Product Safety

System components shall conform to applicable rules and requirements of NFPA 70. System components shall be equipped with instruction plates, including warnings and cautions, describing physical safety, and special or important procedures to be followed in operating and servicing system equipment.

2.1.8 Controls and Designations

Controls and designations shall be as specified in NEMA ICS 1.

2.1.9 Special Test Equipment

The Contractor shall provide all special test equipment, special hardware, software, tools, and programming or initialization equipment needed to start or maintain any part of the system and its components. Special test equipment is defined as any test equipment not normally used in an electronics maintenance facility.

2.1.10 Key Pads

Secure/Access keypads shall use a unique combination of alphanumeric and other symbols as an identifier. Keypads shall contain an integral alphanumeric/special symbols keyboard with symbols arranged in ascending ASCII code ordinal sequence. The keypad shall have a contact output.

2.2 INTERIOR SENSORS

2.2.1 Balanced Magnetic Switch (BMS)

The BMS shall detect 6 mm (1/4 inch) of separating relative movement between the magnet and the switch housing. Upon detecting such movement, it shall transmit an alarm signal to the alarm annunciation system.

2.2.1.1 BMS Subassemblies

The BMS shall consist of a switch assembly and an actuating magnetic assembly. The switch mechanism shall be of the balanced magnetic type. Each switch shall be provided with an overcurrent protective device, rated to limit current to 80 percent of the switch capacity. Switches shall be rated for a minimum lifetime of one million operations. The housings of surface mounted switches and magnets shall be made of nonferrous metal and shall be weatherproof. The housings of recess mounted switches and magnets shall be made of nonferrous metal or plastic. BMS shall be equipped with both enclosure tamper and pry tamper devices.

2.2.1.2 Remote Test

A remote test capability shall be provided. The remote test shall be initiated when commanded by the alarm annunciation system. The remote test shall activate the sensor's

switch mechanism causing an alarm signal to be transmitted to the alarm annunciation system. The remote test shall simulate the movement of the actuating magnet relative to the switch subassembly.

2.2.2 Glass Break Sensor, Piezoelectric

The glass break sensor shall detect high frequency vibrations generated by the breaking of glass while ignoring all other mechanical vibrations. An alarm signal shall be transmitted upon detecting such frequencies to the alarm annunciation system.

2.2.2.1 Sensor Element

The sensor element shall consist of piezoelectric crystals. The sensor element housing shall be designed to be mounted directly to the glass surface being protected. Only the adhesive recommended by the manufacturer of the sensor shall be used to mount detectors to glass. The detection pattern of a sensor element shall be circular with at least a 1.5 m (5 foot) radius on a continuous pane of glass. A factory installed hookup cable of not less than 1.8 m (6 feet) shall be included with each sensor. The sensor element shall not exceed 2600 square mm. (4 square inches.) The sensor element shall be equipped with a light emitting diode (LED) activation indicator. The activation indicator shall light when the sensor responds to the high frequencies associated with breaking glass. The LED shall be held on until it is turned off manually at the sensor signal processor or by command from the alarm annunciation system.

2.2.2.2 Sensor Signal Processor

The sensor signal processor shall process the signals from the sensor elements and provide the alarm signal to the alarm annunciation system. The sensitivity of the sensor shall be adjustable by controls within the sensor signal processor. The controls shall not be accessible when the sensor signal processor housing is in place. The sensor signal processor may be integral with the sensor or may be a separate assembly.

2.2.2.3 Glass Break Simulator

The Contractor shall provide a device that can induce frequencies into the protected pane of glass that will simulate breaking glass to the sensor element without causing damage to the pane of glass.

2.2.3 Glass Break Sensor, Acoustic

The glass break sensor shall detect high frequency vibrations generated by the breaking of glass while ignoring all other mechanical vibrations. An alarm signal shall be transmitted upon detecting such frequencies to the alarm annunciation system.

2.2.3.1 Acoustic Sensor Element

The sensor element shall be a microprocessor based digital device. The sensor shall detect breakage of plate, laminate, tempered, and wired glass while rejecting common causes of false alarms. The detection pattern of the sensor element shall be a range of 6 m (20 feet) minimum. The sensor element shall be equipped with a light emitting diode (LED) activation indicator. The activation indicator shall light when the sensor responds to the high

frequencies associated with breaking glass. The LED shall be held on until it is turned off manually at the sensor signal processor or by command from the alarm annunciation system. The sensor signal processor shall process the signals from the sensor element and provide the alarm signal to the alarm annunciation system.

2.2.3.2 Acoustic Sensor Signal Processor

The sensor signal processor shall process the signals from the sensor elements and provide the alarm signal to the alarm annunciation system. The sensitivity of the sensor shall be adjustable by controls within the sensor signal processor. The controls shall not be accessible when the sensor signal processor housing is in place. The sensor signal processor may be integral with the sensor or may be a separate assembly.

2.2.3.3 Acoustic Glass Break Simulator

A device that can induce frequencies which simulate breaking glass to the sensor shall be available for the specific sensor selected. The simulator shall not cause damage to the pane of glass.

2.2.4 Duress Alarm Switches

Duress alarm switches shall provide the means for an individual to covertly notify the alarm annunciation system that a duress situation exists.

2.2.4.1 Footrail

Footrail duress alarms shall be designed to be foot activated and floor mounted. No visible or audible alarm or noise shall emanate from the switch when activated. The switch shall lock in the activated position until manually reset with a key. The switch housing shall shroud the activating lever to prevent accidental activation. Switches shall be rated for a minimum lifetime of 50,000 operations.

2.2.4.2 Pushbutton

Latching pushbutton duress alarms shall be designed to be activated by depressing a pushbutton located on the duress switch housing. No visible or audible alarm or noise shall emanate from the switch. The switch shall lock in the activated position until manually reset with a key. The switch housing shall shroud the activating button to prevent accidental activation. Switches shall be rated for a minimum lifetime of 50,000 operations.

2.2.5 Security Screen

Security screens shall detect an intruder when the sensor wire is disconnected, cut, or broken. An alarm signal shall be transmitted to the alarm annunciation system. The sensor shall be constructed from 26 gauge insulated hard-drawn copper wire installed in a grid pattern on a wooden frame or as shown. The sensor grid wires connection to the alarm annunciation system shall be housed within a junction box as shown. A tamper switch shall be provided to detect attempts to remove the screen and to detect attempts to tamper with connections and end of line resistor.

2.2.6 Vibration Sensor

The vibration sensor shall detect the high frequency vibrations generated by the use of such tools as oxyacetylene torches; oxygen lances; high speed drills and saws; and explosives, to penetrate a structure while ignoring all other mechanical vibrations. An alarm signal shall be transmitted to the alarm annunciation system. The sensor shall consist of a sensor signal processor and piezoelectric crystal sensor elements that are designed to be rigidly mounted to the structure being protected. The sensor signal processor may be integral with the sensor element or may be a separate assembly. The sensor signal processor shall process the signals from the sensor elements and provide the alarm signal to the alarm annunciation system. The sensitivity of the sensor shall be adjustable by controls within the sensor signal processor. The controls shall not be accessible when the sensor signal processor housing is in place. The detection pattern of a sensor element shall be circular with at least a 1.8 m (6 foot) radius on the protected structure.

2.2.7 Microwave Motion Sensor

The transmitted microwave motion sensor shall detect changes in a microwave signal. Upon detecting a specific change, the sensor shall transmit an alarm signal to the alarm annunciation system. The sensor shall detect a standard intruder moving within the sensor's detection pattern at a speed of 0.09 to 2.3 m (0.3 to 7.5 feet) per second. The sensor shall comply with 47 CFR 15 Subpart F. The sensor's coverage pattern shall be as shown. The sensitivity of the sensor shall be adjustable by controls within the sensor. The controls shall not be accessible when the sensor housing is in place. The sensor shall be adjustable to obtain the coverage shown.

2.2.7.1 Test Indicator, Microwave Signal

The microwave motion sensor shall be equipped with an LED walk test indicator. The walk test indicator shall not be visible during normal operations. When visible, the walk test indicator shall light when the sensor detects an intruder. The sensor shall either be equipped with a manual control, located within the sensor's housing, to enable/disable the test indicator or the test indicator shall be located within the sensor such that it can only be seen when the housing is open/removed.

2.2.7.2 Remote Test, Microwave Signal

A remote test capability shall be provided. The remote test hardware may be integral to the sensor or a separate piece of equipment. The remote test shall be initiated when commanded by the alarm annunciation system. The remote test shall excite the sensing element and associated electronics causing an alarm signal to be transmitted to the alarm annunciation system. The sensor stimulation generated by the remote test hardware shall simulate a standard intruder moving within the sensor's detection pattern.

2.2.8 Passive Infrared Motion Sensor

The passive infrared motion sensor shall detect changes in the ambient level of infrared emissions caused by the movement of a standard intruder within the sensor's field of view. Upon detecting such changes, the sensor shall transmit an alarm signal to the alarm annunciation system. The sensor shall detect a change in temperature of no more than 1.1 degrees C, (2 degrees F,) and shall detect a standard intruder traveling within the sensor's

detection pattern at a speed of 0.091 to 2.29 m (0.3 to 7.5 feet) per second across two adjacent segments of the field of view. Emissions monitored by the sensor shall be in the 8 to 14 micron range. The sensor shall be adjustable to obtain the coverage pattern shown. The sensor shall be equipped with a temperature compensation circuit.

2.2.8.1 Test Indicator, Infrared Emissions

The passive infrared motion sensor shall be equipped with an LED walk test indicator. The walk test indicator shall not be visible during normal operations. When visible, the walk test indicator shall light when the sensor detects an intruder. The sensor shall either be equipped with a manual control, located within the sensor's housing, to enable/disable the test indicator or the test indicator shall be located within the sensor such that it can only be seen when the housing is open/removed.

2.2.8.2 Remote Test, Infrared Emissions

A remote test capability shall be provided. The remote test hardware may be integral to the sensor or a separate piece of equipment. The remote test shall be initiated when commanded by the alarm annunciation system. The remote test shall excite the sensing element and associated electronics causing an alarm signal to be transmitted to the alarm annunciation system. The sensor stimulation generated by the remote test hardware shall simulate a standard intruder moving within the sensor's detection pattern.

2.2.9 Microwave-Passive Infrared Dual Detection Motion Sensor

The dual detection motion sensor shall be a single unit combining a detector which detects changes in the transmitted microwave signal and a detector which detects changes in the ambient level of infrared emissions caused by the movement of a standard intruder within the detection pattern. The detection pattern shall be capable of covering a 6 by 9 m (20 by 30 feet) room. Upon detection of changes by either detector, a window of more than 3 seconds but less than 8 seconds shall be opened. If the other detector detects a change during this window, the sensor shall transmit an alarm signal to the alarm annunciation system. The passive infrared detector shall detect a change in temperature of no more than 1.1 degrees C, (2 degrees F,) and shall detect a standard intruder traveling within the detection pattern at a speed of 0.09 to 2.3 m (0.3 to 7.5 feet) per second across two adjacent segments of the field of view. Emissions monitored by the sensor shall be in the range of 8 to 14 microns. The microwave detector shall detect a standard intruder moving within the detection pattern at a speed of 0.09 to 2.3 m (0.3 to 7.5 feet) per second. The microwave detector shall comply with 47 CFR 15 Subpart F. The controls shall not be accessible when the sensor housing is in place. The sensor shall be configured to produce an alarm when both detectors sense a target.

2.2.9.1 Test Indicator

The sensor shall be equipped with an LED walk test indicator for both the passive infrared detector and the microwave detector. The walk test indicator shall not be visible during normal operations. When visible, the walk test indicator shall light when the sensor detects an intruder. The sensor shall either be equipped with a manual control, located within the sensor's housing, to enable/disable the test indicators or the test indicators shall be located within the sensor such that it can only be seen when the housing is open/removed.

2.2.9.2 Remote Test

A remote test capability shall be provided. The remote test hardware may be integral to the sensor or a separate piece of equipment. The remote test shall be initiated when commanded by the alarm annunciation system. The remote test shall excite each sensing element and associated electronics causing an alarm signal to be transmitted to the alarm annunciation system. The sensor stimulation generated by the remote test hardware shall simulate a standard intruder moving within the sensor's detection pattern.

2.2.10 Photo-Electric Sensor

The photo-electric sensor shall detect an interruption of the light beam that links the transmitter and receiver caused by a standard intruder walking at a speed of less than 2.3 m (7.5 feet) per second through the beam. Upon detecting such an interruption, the sensor shall transmit an alarm signal to the alarm annunciation system. The sensor shall use a pulsed infrared light source. Multiple sensors shall be able to operate within the same zone without interfering with each other. The coverage pattern shall be as shown.

2.2.10.1 Test Indicator, Photo-Electric System

The sensor shall be equipped with an LED walk test indicator. The walk test indicator shall not be visible during normal operations. When visible, the walk test indicator shall light when the sensor detects an intruder. The sensor shall either be equipped with a manual control, located within the sensor's housing, to enable/disable the test indicator or the test indicator shall be located within the sensor so that it can only be seen when the housing is open/removed.

2.2.10.2 Remote Test, Photo Electric System

A remote test capability shall be provided. The remote test hardware may be integral to the sensor or a separate piece of equipment. The remote test shall be initiated when commanded by the alarm annunciation system. The remote test shall excite each sensing element and associated electronics causing an alarm signal to be transmitted to the alarm annunciation system. The sensor stimulation generated by the remote test hardware shall simulate a standard intruder moving within the sensor's detection pattern.

2.3 FIELD PROCESSING HARDWARE

2.3.1 Alarm Annunciation Local Processor

The alarm annunciation local processor shall be a MDI Security Systems (MDI) Remote Terminal Unit (RTU) 195. The RTU shall be equipped with a MDI remote input module (RIM-16) card. Other cards or modules shall be provided as required to support perimeter and volumetric detection, and duress and access control functions.

2.3.2 Processor Power Supply

Local processor and sensors shall be powered from an uninterruptible power source. The uninterruptible power source shall provide 6 hours of battery back-up power in the event of primary power failure and shall automatically fully recharge the batteries within 12 hours after primary power is restored. There will be no equipment malfunctions or perturbations or loss

of data during the switch from primary to battery power and vice versa. Batteries shall be sealed, non-outgassing type. The power supply shall be equipped with an indicator for ac input power and an indicator for dc output power. Loss of primary power shall be reported to the central station as an alarm.

2.3.3 Auxiliary Equipment Power

A GFI service outlet shall be furnished inside the local processor's enclosure.

2.4 COMMUNICATIONS CONTROL

The communications control pre-processor unit (PPU) shall be an ICIDS II compliant MDI PPU-100-C.

2.5 WIRE AND CABLE

2.5.1 General

The Contractor shall provide all wire and cable not indicated as Government furnished equipment. All wiring shall meet NFPA 70 standards.

2.5.2 Above Ground Sensor Wiring

Sensor wiring shall be 20 AWG minimum, twisted and shielded, 2, 3, 4, or 6 pairs to match hardware. Multiconductor wire shall have an outer jacket of PVC.

2.5.3 Class 2 Low Energy Conductors

The conductor sizes specified for digital functions shall take precedence over any requirements for Class 2 low energy signal-circuit conductors specified elsewhere.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

The Contractor shall install all system components and appurtenances in accordance with the manufacturer's instructions, IEEE C2, AR 190-11 and as shown, and shall furnish necessary interconnections, services, and adjustments required for a complete and operable system as specified and shown.

3.1.1 Installation

The Contractor shall install the system in accordance with the standards for safety, NFPA 70, UL 681, UL 1037 and UL 1076, and the appropriate installation manual for each equipment type. Components within the system shall be configured with appropriate service points to pinpoint system trouble in less than 20 minutes. Minimum size of conduit shall be 13 mm. (1/2 inch.) DTS shall not be pulled into conduits or placed in raceways, compartments, outlet boxes, junction boxes, or similar fittings with other building wiring. Flexible cords or cord connections shall not be used to supply power to any components of the system, except where specifically noted herein. All other electrical work shall be as specified in Sections

16415, 16710, 16711 and as shown. Grounding shall be installed as necessary to preclude ground loops, noise, and surges from adversely affecting system operation.

The contractor shall provide all software changes, programming and testing including updates and map adjustments at the central monitoring station in building 2007. Contact Tim Braden, Fort Lewis Physical Security, phone 253-405-2338, to coordinate work within building 2007. Contractor shall be SAFENET qualified to perform work within Building 2007.

3.1.2 Enclosure Penetrations

All enclosure penetrations shall be from the bottom unless the system design requires penetrations from other directions. Penetrations of interior enclosures involving transitions of conduit from interior to exterior, and all penetrations on exterior enclosures shall be sealed with rubber silicone sealant to preclude the entry of water. The conduit riser shall terminate in a hot-dipped galvanized metal cable terminator. The terminator shall be filled with an approved sealant as recommended by the cable manufacturer, and in such a manner that the cable is not damaged.

3.1.3 Cold Galvanizing

All field welds and/or brazing on factory galvanized components, such as boxes, enclosures, and conduits, shall be coated with a cold-galvanized paint containing at least 95 percent zinc by weight.

3.2 SYSTEM STARTUP

The Contractor shall not apply power to the intrusion detection system until the following items have been completed:

- a. Intrusion detection system equipment items and DTS have been set up in accordance with manufacturer's instructions.
- b. A visual inspection of the intrusion detection system has been conducted to ensure that defective equipment items have not been installed and that there are no loose connections.
- c. System wiring has been tested and verified as correctly connected as indicated.
- d. All system grounding and transient protection systems have been verified as properly installed and connected as indicated.
- e. Power supplies to be connected to the intrusion detection system have been verified as the correct voltage, phasing, and frequency as indicated.
- f. Satisfaction of the above requirements shall not relieve the Contractor of responsibility for incorrect installation, defective equipment items, or collateral damage as a result of Contractor work/equipment.

3.3 SITE TESTING

3.3.1 General

The Contractor shall provide personnel, equipment, instrumentation, and supplies necessary to perform the site testing. The Government will witness all testing. Written permission shall be obtained from the Government before proceeding with the next phase of testing. Original copies of all data produced during performance verification and endurance testing shall be turned over to the Government at the conclusion of each phase of testing prior to Government approval of the test.

3.3.2 Contractor's Field Testing

The Contractor shall calibrate and test all equipment, verify data transmission system (DTS) operation, place the integrated system in service, and test the integrated system. Ground rods installed by the Contractor shall be tested as specified in IEEE Std 142. The Contractor shall deliver a report describing results of functional tests, diagnostics, and calibrations including written certification to the Government that the installed complete system has been calibrated, tested, and is ready to begin performance verification testing. The report shall also include a copy of the approved performance verification test procedure.

3.3.3 Performance Verification Test

The Contractor shall demonstrate that the completed system complies with the specified requirements. Using approved test procedures, all physical and functional requirements of the project shall be demonstrated and shown. The performance verification test, as specified, shall not be started until receipt by the Contractor of written permission from the Government, based on the Contractor's written request. This shall include certification of successful completion of testing as specified in paragraph Contractor's Field Testing, and upon successful completion of training as specified. Upon successful completion of the performance verification test, the Contractor shall deliver test reports and other documentation to the Government, as specified. The Contractor will not be held responsible for failures in system performance resulting from the following:

- (1) An outage of the main power in excess of the capability of any backup power source, provided that the automatic initiation of all backup sources was accomplished and that automatic shutdown and restart of the system performed as specified.
- (2) Failure of a Government furnished communications link, provided that the failure was not due to Contractor furnished equipment, installation, or software.
- (3) Failure of existing Government owned equipment, provided that the failure was not due to Contractor furnished equipment, installation, or software.
- (4) The occurrence of specified nuisance alarms.
- (5) The occurrence of specified environmental alarms.

END OF SECTION

SECTION 15910
DIRECT DIGITAL CONTROL SYSTEMS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AIR MOVEMENT AND CONTROL ASSOCIATION, INC. (AMCA)

AMCA 500 (1991) Louvers, Dampers and Shutters

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C12.10 (1997) Electromechanical Watt-hour Meters

ANSI C57.13 (1978; R 1987) Instrument Transformers

AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING
ENGINEERS, INC. (ASHRAE)

ASHRAE 3 (1998) Reducing Emission of Fully Halogenated Refrigerants
in Refrigeration and Air-Conditioning Equipment and Systems

ASHRAE SSPC 135 (1995) The Building Automation and Control Network
(BACnet) Standard

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME/ANSI B16.5 (1996) Pipe Flanges and Flanged Fittings NPS 1/2 Through
NPS 24

ANSI B16.18 (1984; R 1994) Cast Copper Alloy Solder Joint Pressure
Fittings

ASME/ANSI B16.22 (1995) Wrought Copper and Copper Alloy Solder Joint
Pressure Fittings

ASME/ANSI B16.26 (1988) Cast Copper Alloy Fittings for Flared Copper Tubes

ASME/ANSI B16.34 (1996) Valves - Flanged, Threaded, and Welding End

ASME B31.1 (1995) Power Piping

ANSI/ASME B40.1 (1991; Special Notice 1992) Gauges - Pressure Indicating
Dial Type - Elastic Element

ASME BPVC SEC VIII (1995; Addenda 1995) Boiler and Pressure Vessel Codes:
Section VIII Pressure Vessels

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 126	(1995) Gray Iron Castings
ASTM B 32	91996) Solder Metal
ASTM B 75	(1995; Rev. A) Seamless Copper Tube
ASTM B 88M	(1996) Seamless Copper Water Tube (Metric)
ASTM B 88	(1996) Seamless Copper Water Tube
ASTM D 638	(1995) Tensile Properties of Plastics
ASTM D 792	(1991) Density and Specific Gravity (Relative Density) of Plastics by Displacement
ASTM D 1238	(1995) Flow Rates of Thermoplastics by Extrusion Plastometer
ASTM D 1693	(1995) Environmental Stress-Cracking of Ethylene Plastics

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1996) National Electrical Code
NFPA 90A	(1993) Installation of Air Conditioning and Ventilating Systems

SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC. (SMACNA)

SMACNA DCS	(1995; Addendum 1997) HVAC Duct Construction Standards - Metal and Flexible
SMACNA HVACTAB	(1993) HVAC Systems Testing, Adjusting and Balancing

UNDERWRITERS LABORATORIES INC. (UL)

UL 506	(1994; R 1994, Bul. 1994, 1995, and 1996) Specialty Transformers
UL 916	(1994; Bul. 1994 and 1996, R 1996) Energy Management Equipment
UL 1449	(1985; Errata 1986, Bul. 1993, 1994, and 1995) Transient Voltage Surge Suppressors

1.2 DEFINITIONS

1.2.1 Digital Controller

1.2.1.1 Interoperable Digital Controller (IDC)

A control module which is microprocessor based Interoperable LonMark™ or LonWorks. HVAC control is accomplished using LonMark™ based devices where the application has a LonMark™ profile

defined. Where LonMark™ devices are not available, devices based on LonWorks are acceptable providing that an XIF file is provided for the device. An IDC is programmable by the user, has integral input/output within the module or on network connected modules, and performs stand-alone operations.

1.2.1.2 Interoperable BACnet Controller (IBC)

A control module which is microprocessor based Interoperable BACnet Controller in accordance with ANSI/ASHRAE Standard 135-1995. IBC's must be provided with product interoperability compliance statement documents that demonstrate the compliance level to the ANSI/ASHRAE Standard 135-1995.

1.2.2 Direct Digital Control (DDC)

Digital controls, as defined in this specification, performing control logic. The controller directly senses building environment and makes control decisions based on user defined, controller resident programs. The controller outputs control signals that directly operate valves, dampers, and motor controllers. No conventional control devices, pneumatic or electronic, such as receiver-controllers, thermostats, and logic units are present within or interface with a direct digital control loop. Actuators are electric or pneumatic, and the controller output is converted to the appropriate type of signal.

1.2.3 DDC System

A system made up of one or more interoperable digital controllers which communicate on a network.

1.2.4 Distributed Control

The intent of distributed control is to install the controllers near their respective controlled equipment. The control system consists of stand-alone controllers, with the total number of input and output points limited to 48 or less per controller. Failure of any single controller will not cause the loss of more than 48 control points.

1.2.5 Dynamic Control

A process that optimizes energy efficiency of HVAC systems (air handling units, converters, chillers, and boilers) by increasing and decreasing setpoints or starting and stopping equipment in response to heating and cooling needs of the facility. A requirement of dynamic control is knowing the heating/cooling demand status of the process. Therefore dynamic control requires controllers connected in a communications network.

1.2.6 Firmware

Firmware is software programmed into read only memory (ROM) and erasable programmable read only memory (EPROM) chips. Software may not be changed without physically altering the chip.

1.2.7 Graphic User Interface Software (GUI)

Graphic user interface software shall run on Microsoft Windows NT Workstation 4.0 service Pack 4, or later. The GUI employs browser like functionality that includes a tree view (similar to Windows Explorer) for quick viewing of, and access to, the hierarchical structure of the database. Pull down menus and toolbars employ buttons, commands and navigation that permit the operator to perform tasks with a minimum knowledge of the HVAC Control System and basic computing skills. These include, but are not limited to, forward/backward buttons, home button, and a context sensitive locator line (similar to a URL line), that displays the location and the selected object definition.

1.2.8 Hand-Held Terminal

A hand-held terminal is a manufacturer specific device connected directly to a communications port on a controller, through which the controller is accessed and, in some cases, programmed.

1.2.9 Input/Output (I/O) Points

I/O points refer to analog inputs (AI), digital inputs (DI), analog outputs (AO), and digital outputs (DO) in a digital controller. Another term for digital inputs and outputs is binary inputs and outputs. Inputs are from analog sensors (temperature, pressure, humidity, flow) and digital sensors (motor status, flow switches, switch position, and pulse output devices). Outputs operate modulating and on/off control devices.

1.2.10 I/O Expansion Unit

An I/O expansion unit provides additional point capacity to a digital controller and communicates with the stand-alone digital controller on a LAN. An I/O unit is not stand-alone because the control program does not reside in the I/O unit. An I/O expander which connects directly to a stand alone controller through a multi-line microprocessor bus is restricted to reside within 3 feet of the stand alone controller and is considered part of the stand alone controller.

1.2.11 Local Area Network (LAN)

- a. A communications bus that interconnects digital controllers for peer-to-peer (see "peer-to-peer" below) communications. Different levels of LANs are possible within a single DDC system. In this case, a digital controller on a higher level LAN acts as a network controller to the controllers on the lower level LAN. The network controller, then, has at least two LAN communications ports. One port supports peer-to-peer communications with other digital controllers on the higher level LAN. The other port supports communications with the digital controllers on the lower level LAN.
- b. LANs permit sharing global information. This allows building and site wide control strategies such as peak demand limiting, dynamic control strategies, coordinated response to alarm conditions, and remote monitoring and programming of digital controllers.

1.2.12 Microprocessor

A microprocessor refers to the central processing unit (CPU) that contains all registers and logic circuitry that allow digital controllers to function.

1.2.13 Network Area Controller (NAC), Tridium JACE (Java application control engine)

The network area controller (NAC) provides the interface between a higher level LAN or WAN and the interoperable digital controllers, providing global supervisory control functions. NAC's provide multiple user access at varying levels through password protection. The NAC shall be Tridium JACE. No other systems or gateway-based technologies shall be acceptable.

1.2.14 Output Signal Conversion

Output signal conversion refers to changing one kind of control output into a proportionally related signal appropriate for direct actuation of the controlled device. An example is converting a 4 to 20 mA or 0 to 10 VDC signal to a proportional 20 to 103 kPa (3 to 15 psig) signal to operate a pneumatic actuator.

1.2.15 Optimum Start

Optimum start is a method of starting HVAC equipment prior to scheduled occupancy in order to have the building at setpoint when occupied. Optimum start is based on the zone temperatures, zone setpoints, and outdoor temperature.

1.2.16 Peer-to-Peer

Peer-to-peer refers to controllers connected on a communications LAN that act independently, as equals, and communicate with each other to pass information.

1.2.17 Performance Verification Test

The performance verification test (PVT) is the formal commissioning of the DDC system performed after successful contractor field testing and prior to the second phase of DDC training. It is used as a means for final acceptance of the control system.

1.2.18 PID

PID refers to proportional, integral, and derivative control; the three types of action that are used in controlling modulating equipment.

1.2.19 Resolution

Refers to the number of possible states an input value or output value can take and is a function of the digital controller I/O circuitry; the A/D converter for input and the D/A converter for output. Ten bit resolution has 1024 possible states.

1.2.20 Stand-Alone Control

Refers to the digital controller performing required climate control, and energy management functions without connection to another digital controller or computer. Requirements for stand-alone control are a time clock, a microprocessor, resident control programs, PID control, and I/O. All stand-alone controllers have a communication port and firmware for direct connection and interrogation with a laptop computer or similar hand-held device. This interrogation includes parameter changes and program downloads.

1.2.21 Terminal Control Unit (TCU)

An off-the-shelf, stand-alone digital controller equipped for communication on a lower level LAN. TCUs may deviate from stand-alone only in receiving energy management and time information from a stand alone digital controller. A TCU is commonly application specific and is used for distributed control of specific HVAC subsystems. A TCU communicates with other digital controllers. Typically, a TCU communicates on a lower level LAN. Examples where TCUs are used include small air handling units (AHUs), variable air volume (VAV) boxes, fan coil units, heat pumps, and hydronic zones..

1.3 TEMPERATURE CONTROL AND FACILITY MANAGEMENT AND CONTROL SYSTEM

The entire Temperature Control System (TCS) shall be comprised of a network of interoperable, stand-alone digital controllers communicating via LonMark/LonTalk and/or BACnet communication protocols to a Tridium JACE Network Area Controller (NAC).

The Tridium JACE NAC shall connect to the Fort Lewis Public Works intranet, local or wide area network, as specified or indicated. Access to the system, either locally in each building, or remotely from a central site or sites, shall be accomplished through standard Web browsers, via the Internet and/or local area network.

The Facility Management and Control System (FMCS) shall be comprised of a network of interoperable, stand-alone digital controllers communicating on an open protocol communication network to a host computer within the facility (when specified) using graphical user interface software and communicating via the Fort Lewis Public Works intranet to the Fort Lewis host computer in a remote location. The FMCS shall communicate to third party systems such as chillers, boilers, air handling systems, energy metering systems, other energy management systems, access control systems, fire-life safety systems and other building management related devices with open, interoperable communication capabilities.

Provide a new TC and FMCS including associated equipment and accessories. Manufacturer's products, including design, materials, fabrication, assembly, erection, examination, inspection, and testing shall be in accordance with ASME B31.1 and NFPA 70, except as modified herein or indicated otherwise.

The TC systems shall maintain stable temperature control and all other conditions as indicated. The end-to-end accuracy of the system, including temperature sensor error, wiring error, A/D conversion, and display, shall be .5 degree C (1 degree F) or less.

1.4 DDC SYSTEM DESCRIPTION

1.4.1 Design Requirements

1.4.1.1 Control System Schematic

Provide control system schematic that includes the following:

- a. Location of each input and output device
- b. Flow diagram of each HVAC component, for instance flow through coils, fans, dampers
- c. Name or symbol for each component such as V-1, DM-2, and T-1 for a valve, damper motor, and temperature sensor, respectively
- d. Setpoints
- e. Sensor range
- f. Actuator range
- g. Valve and damper schedules and normal position
- h. Switch points on input switches
- i. Written sequence of operation for each schematic
- j. Schedule identifying each sensor and controlled device with the following information:
 - (1) LAN and Software point name with send and receive address if applicable
 - (2) Point type (AO, AI, DO, DI)
 - (3) Point range
 - (4) Digital controller number for each point

1.4.1.2 Electrical Equipment Ladder Diagrams

Submit diagrams showing electrical equipment interlocks, including voltages and currents.

1.4.1.3 Component Wiring Diagrams

Submit a wiring diagram for each type of input device and each type of output device. Diagram shall show how the device is wired and powered; showing typical connections at the digital controller and each power supply, as well as at the device itself. Show for all field connected devices, including, but not limited to, control relays, motor starters, electric or electronic actuators, and temperature, pressure, flow, proof, and humidity sensors and transmitters.

1.4.1.4 Terminal Strip Diagrams

Submit a diagram of each terminal strip, including digital controller base terminal strips (digital controllers shall not be directly wired for ease of removal and replacement), terminal strip location, termination numbers and the associated point names.

1.4.1.5 Communication Architecture Schematic

Submit a schematic showing communication networks used for all DDC system controllers, workstations, and field interface devices. Schematic shall show hierarchical topology. The supplied system must incorporate the ability to access all data using Tridium JACE Java enabled browsers without requiring proprietary operator interface and configuration programs. An Open DataBase Connectivity (ODBC) or Structured Query Language (SQL) compliant server database is required for all system database parameter storage. This data shall reside on a contractor supplied and installed server for all database access. Systems requiring proprietary database and user interface programs shall not be acceptable.

1.5 SUBMITTALS

Submit manufacturers' specification sheets for each type of equipment to show compliance with the project specification. For each type of equipment highlight each compliance item and reference each item to the relevant specification paragraph number. Submit sufficient manufacturers' information to allow verification of compliance by the reviewing authority. Equipment and software for which specification compliance data shall be submitted includes but is not limited to the following:

SD-01 Preconstruction Submittals

- List of Drawings

- List of Symbols and Abbreviations Used on Drawings

- List of I/O Points

- Equipment Components List

- AC Power Table

SD-02 Shop Drawings

Drawings shall be on A1 (841 by 594 mm) 34 by 22 inch sheets in the form and arrangement shown. Drawings on 11 x 17 sheets shall be acceptable, subject to approval, if printed on high quality laser printer. The drawings shall use the same abbreviations, symbols, nomenclature and identifiers shown. Each control system element on a drawing

shall have a unique identifier as shown. The HVAC Control System Drawings shall be delivered together as a complete submittal. Deviations must be approved by the Contracting Officer. Drawings shall be submitted along with Submittal SD-01, Data.

a. HVAC Control System Drawings shall include the following:

Sheet One: Drawing Index, HVAC Control System Legend.

Sheet Two: Valve Schedule, Damper Schedule.

Sheet Three: Compressed Air Station Schematic (if applicable).

Sheet Four: Control System Schematic and Equipment Schedule.

Sheet Five: Sequence of Operation and Data Terminal Strip Layout.

Sheet Six: Control Loop Wiring Diagrams and Ladder Diagrams

Sheet Seven: Motor Starter and Relay Wiring Diagram.

Sheet Eight: Communication Network Architecture and Block Diagram.

Sheet Nine: DDC Panel Installation and Block Diagram.

(Repeat Sheets Four through Seven for each AHU System.)

b. The HVAC Control System Drawing Index shall show the name and number of the building and military site. The Drawing Index shall list HVAC Control System Drawings, including the drawing number, sheet number, drawing title, and computer filename when used. The HVAC Control System Legend shall show generic symbols and the name of devices shown on the HVAC Control System Drawings.

c. The valve schedule shall include each valve's unique identifier, size, flow coefficient Kv (Cv), pressure drop at specified flow rate, spring range, positive positioner range, actuator size, close-off pressure data, dimensions, and access and clearance requirements data. Valve schedules may be submitted in advance but shall be included in the complete submittal.

d. The damper schedule shall contain each damper's and each actuator's identifier, nominal and actual sizes, orientation of axis and frame, direction of blade rotation, spring ranges, operation rate, positive positioner ranges, locations of actuators and damper end switches, arrangement of sections in multi-section dampers, and methods of connecting dampers, actuators, and linkages. The Damper Schedule shall include the maximum leakage rate at the operating static-pressure differential. The Damper Schedule shall contain actuator selection data supported by calculations of the torque required to move and seal the dampers, access and clearance requirements. Damper schedules may be submitted in advance but shall be included in the complete submittal.

e. The compressed air station schematic diagram shall show all equipment, including: compressor with motor horsepower and voltage; starter; isolators; manual bypasses; tubing sizes; drain piping and drain traps; reducing valves; dryer; and data on manufacturer's names and model numbers, mounting, access, and clearance requirements. Air Compressor and air dryer data shall include calculations of the air consumption of all current-to-pneumatic transducers and of any other control system devices to be connected to the compressed air station, and the compressed air supply dewpoint temperature at 140

kPa (20 psig). Compressed air station schematic drawings shall be submitted for each compressed air station.

f. The HVAC control system schematics shall show all control and mechanical devices associated with the HVAC system. A system schematic drawing shall be submitted for each HVAC system.

g. The HVAC control system equipment Schedule shall be developed. All devices shall have unique identifiers and shall be referenced in the equipment schedule. Information to be included in the equipment schedule shall be the control loop, device unique identifier, device function, setpoint, input range, and additional important parameters (i.e., output range). An equipment schedule shall be submitted for each HVAC system.

h. The HVAC control system sequence of operation shall reflect the language and format of this specification, and shall refer to the devices by their unique identifiers as shown. No operational deviations from specified sequences will be permitted without prior written approval of the Contracting Officer. Sequences of operation shall be submitted for each HVAC control system including each type of terminal unit control system.

i. The HVAC control system wiring diagrams shall be functional wiring diagrams which show the interconnection of conductors and cables to HVAC control panel terminal blocks and to the identified terminals of devices, starters and package equipment. The wiring diagrams shall show necessary jumpers and ground connections. The wiring diagrams shall show the labels of all conductors. Sources of power required for HVAC control systems and for packaged equipment control systems shall be identified back to the panel board circuit breaker number, HVAC system control panel, magnetic starter, or packaged equipment control circuit. Each power supply and transformer not integral to a controller, starter, or packaged equipment shall be shown. The connected volt-ampere load and the power supply volt-ampere rating shall be shown. Wiring diagrams shall be submitted for each HVAC control system.

SD-03 Product Data

DDC hardware

DDC capabilities

Variable frequency drive hardware

Workstation software

Input devices

Output devices

Surge and transient protection

Notebook computer

Hand-held terminal

Smoke detectors

Pneumatic tubing

SD-06 Test Reports

Field tests

Commissioning Report

Three copies of the HVAC control system commissioning procedures, in booklet form and indexed, 60 days prior to the scheduled start of commissioning. Commissioning procedures shall be provided for each HVAC control system, and for each type of terminal unit control system. The Commissioning procedures shall reflect the format and language of this specification, and refer to devices by their unique identifiers as provided by the contractor, or if applicable, as shown. The Commissioning procedures shall be specific for each HVAC system, and shall give detailed step-by-step procedures for commissioning of the system.

a. The Commissioning procedures shall include detailed, product specific set-up procedures, configuration procedures, adjustment procedures, and calibration procedures for each device. Where the detailed product specific commissioning procedures are included in manufacturer supplied manuals, reference may be made in the HVAC control system commissioning procedures to the manuals.

b. An HVAC control system commissioning procedures equipment list shall be included that lists the equipment to be used to accomplish commissioning. The list shall include manufacturer name, model number, equipment function, the date of the latest calibration, and the results of the latest calibration.

Performance verification tests

Three copies of the HVAC Control System Performance Verification Test Procedures, in booklet form and indexed, 60 days before the Contractor's scheduled test dates. The performance verification test procedures shall refer to the devices by their unique identifiers as shown, shall explain, step-by-step, the actions and expected results that will demonstrate that the HVAC control system performs in accordance with the sequences of operation, and other contract documents. An HVAC control system performance verification test equipment list shall be included that lists the equipment to be used during performance verification testing. The list shall include manufacturer name, model number, equipment function, the date of the latest calibration, and the results of the latest calibration.

Training

Three copies of an outline for the HVAC control system training course with a proposed time schedule. Approval of the planned training schedule shall be obtained from the Government at least 60 days prior to the start of the training. Six copies of HVAC control system training course material 30 days prior to the scheduled start of the training course. The training course material shall include the operation manual, maintenance and repair manual, and paper copies of overheads used in the course.

SD-07 Certificates

Contractors' Qualifications

Training

Pressure Tank Certification

SD-10 Operation and Maintenance Data

Controls and HVAC System Operators Manual

Provide three copies of a Control and HVAC Systems Operators Manual. Provide in a 3 ring binder with a minimum of the following 7 sections. Use tabs to divide each section.

- a. Description of HVAC Systems: Provide a description of the HVAC system components and control system. Include sequence of operation and a complete points list.
- b. Controls Drawings: Provide drawings as specified in submittal paragraph.
- c. Control Program Listings: Provide listing of all control programs, including terminal equipment controller setup pages if used.
- d. Current Operating Parameters: Provide printouts of input and output setup information, (database setups). This section provides information such as point addresses, slopes and offsets for all points, database of points, etc.
- e. Design Information: Provide tab, but leave this section blank.
- f. Control Equipment Technical Data Sheets and Adobe Acrobat .pdf files: Provide technical data sheets, installation and maintenance instructions for all controller hardware and accessories, as well as Adobe Acrobat .pdf files.
- g. Backup of Control Program: Provide backup copies of the control program and ACAD or Viso control drawings on 3.5 inch disks, CD-ROM, and 100MB Zip Disks. Provide control drawings in Adobe Acrobat .pdf files for use with Acrobat Reader.

DDC Manufacturer's Hardware and Software Manuals

Provide three copies of the following manuals.

- a. Installation and Technical Manuals for all digital controller hardware.
- b. Installation and Technical Manuals for workstation.
- c. Operator Manuals for all digital controllers.
- d. Operator Manuals for all workstation software.
- e. Programming Manuals for all digital controllers.
- f. Programming Manuals for workstation software.
- g. In addition to manuals, provide copy of manuals on removable media disk or on workstation in Adobe Acrobat .pdf format.

SD-11 Closeout Submittals

Posted operating instructions:

Air compressors

Refrigerated air dryer

Provide administrative and closeout submittals:

Training course documentation

Service organizations

Contractor certification

1.6 OPERATING ENVIRONMENT

Protect components from humidity and temperature variations, dust, and other contaminants, within limits published by the manufacturer.

1.7 QUALITY ASSURANCE

1.7.1 Standard Products

a. Material and equipment shall be standard products of manufacturer regularly engaged in the manufacturing of such product, using similar materials, design and workmanship. The standard products shall have been in commercial or industrial use for 2 years prior to bid opening. The 2-year use shall include applications of similarly sized equipment and materials used under similar circumstances and sold on the commercial market through advertisements, manufacturers' catalogs, or brochures.

b. Products are supported by a local service organization.

1.7.2 Nameplates and Tags

a. Nameplates and tags bearing device unique identifiers shall be engraved or stamped. Permanently attach nameplates to HVAC control panel doors and back plates.

b. For each field mounted piece of equipment attach a plastic or metal tag with equipment name and point identifier.

1.7.3 Verification of Dimensions

The contractor shall verify all dimensions in the field, and shall advise the Contracting Officer of any discrepancy before performing work.

1.7.4 Drawings

Because of the small scale of the drawings, it is not possible to indicate all offsets, fittings, and accessories that may be required. The Contractor shall carefully investigate the mechanical, electrical, and finish conditions that could affect the work, and shall furnish all work necessary to meet such conditions.

1.7.5 Contractors Qualifications

The Contractor or subcontractor performing the work shall have completed a minimum of five DDC systems installations of similar design and complexity and have successfully integrated Tridium JACE NAC's in at least three separate installations.

1.7.6 Pressure Tank Certification

Provide certification stating pressure tanks are constructed and labeled in accordance with ASME BPVC SEC VIII for a minimum of 125 psig working pressure.

1.7.7 Training Course Documentation

Training course documentation shall include a manual for each trainee plus two additional copies and two copies of audiovisual training aids, if used. Documentation shall include an agenda, defined objectives for each lesson and detailed description of the subject matter of each lesson.

1.7.8 Service Organizations

Qualified service organization list that shall include the names and telephone numbers of organizations qualified to service the HVAC control systems.

1.7.9 Contractor Certification

Provide certification that the installation of the control system is complete and meets the technical requirements of this section.

1.7.10 Modification of References

The advisory provision in ASME B31.1 and NFPA 70 are mandatory. Substitute the word "shall" for "should" wherever it appears and interpret all references to the "authority having jurisdiction" and "owner" to mean the Contracting Officer.

1.8 WARRANTY

1.8.1 Year 2000 (Y2K) Compliance Warranty

For each product, component and system specified in this section as a "computer controlled facility component" provide a statement of Y2K compliance warranty. The contractor warrants that each hardware, software, and firmware product delivered under this contract is able to accurately process date and time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, including years 1999 and 2000 and leap year calculations. The duration of this warranty and the remedies available to the Government for breach of this warranty shall be defined in, and subject to, the terms and limitations of the contractor's standard commercial warranty or warranties contained in this contract. Nothing in this warranty shall be construed to limit any rights or remedies the Government may otherwise have under this contract, with respect to defects other than Year 2000 performance.

PART 2 PRODUCTS

2.1 DDC SYSTEM

- a. Provide a DDC system as a distributed control system. The system shall have stand-alone Interoperable LonMark™ or LonWorks, or BACnet digital controllers, a communications Network with Network Access Controllers (NAC's) in each facility, capable of serving as a WEB browser server if specified, and a separate workstation computer with workstation software.
- b. Provide an operator programmable system to perform closed-loop, modulating control of building equipment. Connect all digital controllers through the communication network to share common data and report to workstation computers. Provide workstation DDC software capable of programming and monitoring the digital controllers. The control system shall be capable of downloading programs between the workstation and digital controllers.

c. Provide the quantity of digital controllers as required to perform the sequences of operation, or where shown, as indicated on the drawings to perform required climate control, energy management, and alarm functions. The quantity of controllers shall be no less than that required to perform the sequences of operation within the parameters indicated in these specifications. All material used shall be currently in production.

d. The LonMark/LonWorks or BACnet controllers shall be connected through Tridium JACE network area controllers to the Fort Lewis Public Works intranet, local, or wide area network.

2.1.1 Interoperable Direct Digital Controllers

DDC hardware shall be UL 916 rated. Interoperable controllers (IDC's) shall be LonMark™ or LonWorks bearing the applicable LonMark™ interoperability logo. Where LonMark™ devices are not available, devices based on LonWorks are acceptable providing that an XIF file is provided for the device. Controllers shall be programmable by the user, have integral input/output within the module or on network connected modules, and perform stand-alone operations. Interoperable BACnet Controllers (IBC's) shall be in accordance with ANSI/ASHRAE Standard 135-1995. IBC's must be provided with product interoperability compliance statement documents that demonstrate the compliance level to the ANSI/ASHRAE Standard 135-1995.

2.1.1.1 Distributed Control

Apply digital controllers in a distributed control manner.

2.1.1.2 I/O Point Limitation

Total number of I/O hardware points, including those communicated over a LAN, used by a single stand-alone digital controller, including I/O expansion units shall not exceed 48.

2.1.1.3 Environmental Operating Limits

Provide digital controllers that operate in environmental conditions between 32 and 120 degrees F.

2.1.1.4 Stand-Alone Control

Provide stand-alone digital controllers.

2.1.1.5 Internal Clock

Provide a clock with each stand-alone controller. The facility NAC shall also provide time keeping functions to stand alone controllers and TCU's. Each controller shall have its clock backed up by a battery or capacitor with sufficient capacity to maintain clock operation for a minimum of 72 hours during power outage.

2.1.1.6 Memory

a. Provide sufficient memory for each controller to support required control, communication, trends, alarms, and messages

b. Memory Protection: Programs residing in memory shall be protected either by using EEPROM, flash memory, or by an uninterruptible power source (battery or uninterruptible power supply (UPS)). The backup power source shall have sufficient capacity to maintain volatile memory during an AC power failure. Where the uninterruptible power source is rechargeable (a rechargeable battery), provide sufficient back-up capacity for a minimum of seventy-two hours. The rechargeable power source shall be constantly charged while the

controller is operating under normal line power. Where a non-rechargeable power source is used, provide sufficient capacity for a minimum of two years accumulated power failure. Batteries shall be replaceable without soldering.

2.1.1.7 Inputs

Provide input function integral to the direct digital controller. Provide input type(s) as required by the DDC design. For each type of input used on high-level controllers, provide at least one similar spare input point per controller.

- a. Analog Inputs: Allowable input types are 100 ohm (or higher) platinum RTDs, thermistors, 4 to 20 mA, and 0-10 VDC. Thermistor and direct RTD inputs must have appropriate conversion curves stored in controller software or firmware. Analog to digital (A/D) conversion shall have 10-bit minimum resolution.
- b. Digital Inputs: Digital inputs shall sense open/close, on/off, or other two state indications.

2.1.1.8 Outputs

Provide output function integral to the direct digital controller. Provide output type(s) as required by the DDC design. For each type of output used on high-level controllers, provide at least one similar spare output point per controller.

- a. Analog Outputs: Provide controllers with a minimum output resolution of 10 bits. Output shall be 4 to 20 mA, 0 to 10 VDC, or 0 to 20 psig. Each pneumatic output shall have feedback for monitoring of the actual pneumatic signal.
- b. Digital Outputs: Provide contact closure with contacts rated at a minimum of 1 ampere at 24 volts.

2.1.1.9 PID Control

Provide controllers with proportional integral, and derivative control capability. Terminal controllers are not required to have the derivative component.

2.1.1.10 Digital Controller Networking Capabilities

The intent of this specification is to provide a peer-to-peer networked, stand-alone, distributed control system with the capability to integrate both the ANSI/ASHRAE Standard 135-1995 BACnet and LonWorks technology communication protocols in one open, interoperable system. The upper level digital controllers shall be capable of networking with other similar upper level controllers. Upper level controllers shall also be capable of communicating over a network between buildings.

2.1.1.10.1 LonMark™ IDC Networking Capabilities

The contractor shall run the LonWorks network trunk to a Tridium JACE Network Area Controller (NAC). Coordinate locations of the NAC to ensure that maximum network wiring distances, as specified by the LonWorks wiring guidelines, are not exceeded. A maximum of 126 devices may occupy any one LonWorks trunk and must be installed using the appropriate trunk termination device. All LonWorks and LonMark devices must be supplied using FTT-10A LonWorks communications transceivers. The IDCs shall communicate with the NAC at a baud rate of not less than 78.8K baud. The IDC shall provide LED indication of communication and controller performance to the technician, without cover removal.

2.1.1.10.2 IBC Networking Capabilities

The system supplier must provide a PICS document showing the installed systems compliance level to the ANSI/ASHRAE Standard 135-1995. Minimum compliance is Level 6.

Physical connection of BACnet devices shall be via Ethernet.

The IBC Sensor shall connect directly to the IBC and shall not utilize any of the I/O points of the controller. The IBC Sensor shall provide a two-wire connection to the controller that is polarity and wire type insensitive. The IBC Sensor shall provide a communications jack for connection to the BACnet communication trunk to which the IBC controller is connected. The IBC Sensor, the connected controller, and all other devices on the BACnet bus shall be accessible by the portable operators terminal (POT).

2.1.1.11 Communications Ports

a. Controller-to-Controller LAN Communications Ports: Controllers in the building DDC system shall be connected in a communications network. Controllers shall have controller to controller communication ports to both peer controller (upper level controllers) and terminal controllers (lower level controllers). Network may consist of more than one level of local area network and one level may have multiple drops. Communications network shall permit sharing information between controllers, allowing execution of dynamic control strategies, and coordinated response to alarm conditions. Minimum baud rate for the lowest level LAN shall be 9600 Baud. Minimum baud rate for the highest level LAN shall be 9600 Baud. Minimum baud rate for a DDC system consisting of a single LAN shall be 9600 Baud.

b. On-Site Interface Ports: Provide a RS-232, RS-485, or RJ-11 communications port for each digital controller that allows direct connection of a computer or hand held terminal and through which the controller may be fully accessed. Controller access shall not be limited to access through another controller. On-site interface communication ports shall be in addition to the communications port(s) supporting controller to controller communications. Communication rate shall be 9600-Baud minimum. Every controller on the highest level LAN shall have a communications port supporting direct connection of a computer; a hand held terminal port is not sufficient. By connecting a computer to this port, every controller in the direct digital control system shall be able to be fully accessed and programmed. The following operations shall be available: downloading and uploading control programs, modifying programs and program data base, and retrieving or accepting trend reports, status reports, messages, and alarms.

c. Remote Work Station Interface Port: Provide one additional direct connect computer port in each DDC system for permanent connection of a remote operator's work station, unless the workstation is a node on the LAN. All operations possible by directly connecting a computer to a controller at the highest level LAN shall be available through this port.

d. Telecommunications Interface Port: Provide one additional telecommunications port in each DDC system permitting remote communications via telephone. All operations possible by directly connecting a computer to a controller at the highest level LAN shall be available through the telecommunications port. A telecommunications port provided on a digital controller shall be in addition to the port required for directly connecting a computer to the controller. Telecommunication baud rate shall be 28000 minimum.

2.1.1.12 Y2K Compliant

Provide computer controlled facility components, specified in this section, that are Year 2000 compliant (Y2K). Computer controlled facility components refers to software driven technology and embedded

microchip technology. This includes, but is not limited to, computers, telecommunications switches, meters, HVAC controllers, utility monitoring and control systems, fire detection instruments, alarms, security systems, and other facilities control systems utilizing microcomputer, minicomputer, or programmable logic controllers

2.1.1.13 Modem

Provide two modems per DDC system to communicate between the digital control system and the computer workstation. Minimum modem baud rate is 56 Kbaud with v.90 communication standard.

2.1.1.14 Digital Controller Cabinet

Each indoor digital controller cabinet shall protect the controller from dust and shall be rated NEMA 1, unless specified otherwise. Each outdoor digital controller cabinet shall protect the controller from all outside conditions and shall be rated NEMA 4. Cabinets for high level controllers shall be hinged door, lockable, and have offset removable metal back plate.

2.1.1.15 Main Power Switch

Each controller on the highest level LAN or each control cabinet shall have a main external power switch for isolation of the controller from AC power. The switch shall be located in the DDC cabinet.

2.1.2 Terminal Control Units

- a. The same company as the digital controllers shall manufacture TCUs.
- b. TCUs shall automatically start-up on return of power after a failure, and previous operating parameters shall exist or shall be automatically downloaded from a digital controller on a higher level LAN.
- c. TCUs do not require an internal clock, if they get time information from a higher level digital controller.

2.1.3 DDC Software

The Contracting Officers representative shall sign a copy of the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to Ft. Lewis as defined by the manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software. The supplied computer software shall employ object-oriented technology (OOT) for representation of all data and control devices within the system. In addition, adherence to industry standards including ANSI / ASHRAE™ Standard 135-1995, BACnet and LonMark to assure interoperability between all system components is required. For each LonWorks device that does not have LonMark certification, the device supplier must provide an XIF file for the device. For each BACnet device, the device supplier must provide a PICS document showing the installed device's compliance level. Minimum compliance is Level 6; with the ability to support data read and write functionality.

2.1.3.1 Sequence of Control

Provide, in the digital controllers, software to execute the sequence of control. Provide one registered copy of all software used to program control sequences in direct digital controllers, LAN controllers and field configurable smart controllers on the stationary (notebook) workstation. Provide any access keys which restrict programming language software functions or the ability to compile or prepare programming for download to controllers. Provide final copy of each program used in the system in both compiled and editable formats. Where specially programmed factory configured smart controllers

are used in the system, provide the minimum factory programming tools and specialized controller programs ready for download to replacement controllers. At minimum, controllers must be capable of performing programming functions outlined in the following "Parameter Modification" section.

2.1.3.2 Parameter Modification

Provide software to modify control parameters. Parameter modification shall be accomplished for all controllers (high level and low level application specific) through the main workstation computer and with laptop computer or keypad terminal directly at each controller. The supplied computer software shall employ object-oriented technology (OOT) for representation of all data and control devices within the system. Modifications shall be accomplished without having to make changes directly in line-by-line programming. When the control program is of the line-by-line type, database parameters in the following list that take real number values shall require assignment of variable names so parameters can be changed without modifying programming. Alternatively, block programming languages shall provide for modification of these database parameters in fill-in-the-blank screens. Parameters of like type, including those in different high level and low level controllers, may be grouped together for a single, global change. For example, an operator may group all second floor space temperature setpoints into a group and raise the setpoint by two degrees with a single command. The following parameters shall be modifiable in this way:

- a. Setpoints
- b. Dead band limits and spans
- c. Reset schedules
- d. Switchover points
- e. PID gains and time between control output changes
- f. Time
- g. Timed local override time
- h. Occupancy schedules
- i. Holidays
- j. Alarm points, alarm limits, and alarm messages
- k. Point definition database
- l. Point enable, disable, and override
- m. Trend points, trend intervals, trend reports
- n. Analog input default values
- o. Passwords
- p. Communications parameters including network and telephone communications setups

2.1.3.3 Differential

Where setpoint is in response to some analog input such as temperature, pressure, or humidity, include a setpoint differential for the control loop to prevent short cycling of control devices.

2.1.3.4 Motor and Flow Status Delay

Provide an adjustable delay between when a motor is commanded on or off and when the control program looks to the motor or flow status input for confirmation of successful command execution.

2.1.3.5 Runtime Accumulation

Provide resettable run time accumulation for each controlled digital output.

2.1.3.6 Timed Local Override

Provide user definable adjustable run time for each push of a momentary contact timed local override. Pushes shall be cumulative with each push designating the same length of time. Provide a user definable limit on the number of contact closures summed, such as 6, before the contact closures are ignored. Timed local overrides are disabled during occupancy periods.

2.1.3.7 Time Programs

Provide programs to automatically adjust for leap years, and make daylight savings time and standard time adjustments.

2.1.3.8 Scheduling

- a. Individual controlled equipment shall be schedulable with schedule based on time of day, day of week, and day of year. Equipment may be associated into groups. Each group may be associated with a different schedule. Changing the schedule of a group shall change the schedule of all equipment in the group. Groups may be modified, created and deleted by the operator.
- b. Provide capability that will allow current schedules to be viewed and modified in a seven-day week format. When control program does not automatically compute holidays, provide capability to enter holiday schedules one full year at a time.

2.1.3.9 Point Override

I/O and virtual points shall accept software overrides to any possible value.

2.1.3.10 Alarming

I/O points and software points shall be alarmable. Alarms may be enabled and disabled for every point. Alarm limits shall be adjustable on analog points. Controllers connected to an external communications device such as a printer, terminal, or computer, shall download alarm and alarm message when alarm occurs. When a computer workstation is connected to a DDC system with a modem, operator selected alarm conditions will initiate a call and report to the computer or an alphanumeric pager. Otherwise alarms will be stored and automatically downloaded when a communications link occurs. The following conditions shall generate alarms:

- a. Motor is commanded on or off but the motor status input indicates no change
- b. Temperature, humidity, or pressure strays outside selectable limits
- c. An analog input takes a value indicating sensor failure
- d. A module is not communicating on the LAN

- e. A power outage occurs

2.1.3.11 Messages

Messages shall be operator defined and assigned to alarm or status conditions. Messages shall be displayed on the workstation or printer when these conditions occur.

2.1.3.12 Trending

DDC system shall have the capability to trend all I/O and virtual points. Points may be associated into groups. A trend report may be set up for each group. The period between logging consecutive trend values shall range from one minute to 60 minutes at a minimum. The minimum number of consecutive trend values stored at one time shall be 30 per variable. When trend memory is full, the most recent data shall overwrite the oldest data. Trend data shall be capable of being uploaded to computer. Trend data shall be available on a real time basis; trend data shall appear numerically and graphically on a connected computer's screen as the data is processed from the DDC system. Trend reports shall be capable of uploading to computer for storage.

2.1.3.13 Status Display

Current status of I/O and virtual points shall be displayed on command. Points shall be associated into functional groups, such as all the I/O and virtual points associated with control of a single air handling unit, and displayed as a group, so the status of a single mechanical system can be readily checked. A group shall be selectable from a menu of groups having meaningful names; such as AHU-4, Second Floor, Chiller System, and other such names.

2.1.3.14 Diagnostics

Each controller shall perform self-diagnostic routines and provide messages to an operator when errors are detected. The DDC system shall be capable of recognizing a non-responsive module on a LAN. The remaining, responsive modules on a LAN shall not operate in a degraded mode.

2.1.3.15 Power Loss

During a power outage, each controller shall assume a disabled status and outputs shall go to a user definable state. Upon restoration of power, DDC system shall perform an orderly restart, with sequencing of outputs.

2.1.3.16 Program Transfer

Provide software for download of control programs and database from a computer to controllers and upload of same to computer from controllers. Every digital controller in the DDC system shall be capable of being downloaded and uploaded to through a single controller on the highest level LAN.

2.1.3.17 Password Protection

Provide at least three levels of password protection to the DDC system permitting different levels of access to the system. The lowest level allows monitoring only. The highest level allows full control of all functions, including setting new passwords.

2.1.4 Workstation

- a. Provide a central workstation computer with installed software to provide an interface for monitoring, troubleshooting, and making adjustments to the program or operating parameters of all DDC controllers, including TCUs. The workstation shall also be capable of programming all controllers, including TCUs.

- b. DDC system shall routinely operate continuously without connection to the workstation. Information at the workstation is not required for day to day operations of the direct digital controllers.

2.1.4.1 Hardware

The DDC system manufacturer shall recommend all workstation computer equipment and peripherals. The workstation shall be configured to operate according to the DDC system manufacturer's specifications. Workstation hardware shall be configured to allow operation of software, uploading and downloading of programs, and creation of graphics. At a minimum the workstation hardware shall consist of:

- a. Computer; computer shall use Microsoft Windows 98, NT or higher and shall not have less than Intel Pentium III processor, running at 1 Gigahertz speed, 20 gigabyte hard disc, 128 megabyte RAM, 2 serial and 1 parallel port, 17 inch monitor with 1024 x 768 and 0.28 dpi minimum resolution, 101 character keyboard, a 1.4 megabyte 3 1/2 inch floppy drive, 48X internal CD ROM drive, internal 100MB Zip drive with 2 Zip disks.
- b. Mouse
- c. Printer; printer resolution shall be inkjet laser quality.
- d. 120-volt terminal strip UL 1449 6-outlet with surge protection.

2.1.4.2 Software

Workstation software shall be recommended and supported by the DDC system manufacturer and configured to operate according to the DDC system manufacturer's specifications. Software shall be resident in the workstation computer and permit monitoring and troubleshooting of the DDC system. Workstation software permits modification of controller parameters and control for all controllers, both high level and low level application specific. Operations shall be menu selected. Menu selections shall be made with a mouse.

- a. Menu System: Menu system shall allow an operator to select a particular function or access a particular screen through successive menu penetration.
- b. Controller Parameter Modification: The workstation software shall be an interface for performance specified in paragraph entitled "Parameter Modification" and available through direct connection of a computer to a digital controller. Parameter modification shall require only that an operator "fill in the blank" for a parameter on a screen requesting the information in plain language. Parameter modifications shall download to the appropriate controllers at operator request.
- c. Program modification: For systems using a line-by-line programming language, provide an off-line text editor, similar to a BASIC program editor, permitting modification of controller resident control programs. For systems using block programming languages provide a capability for linking blocks together to create new programs or modify existing programs. Program modifications shall download to appropriate controllers at operator request.

2.1.4.3 Graphic-Based Software

The workstation shall use graphic-based software to provide a user-friendly interface to the DDC system. Graphic-based software shall provide graphical representation of the building, the buildings mechanical systems, and the DDC system. The current value and point name of every I/O point shall

be shown on at least one graphic and in its appropriate physical location relative to building and mechanical systems.

a. Graphics shall closely follow the style of the control drawings in representing mechanical systems, sensors, controlled devices, and point names.

b. Graphic Title: Graphics shall have an identifying title visible when the graphic is being viewed.

c. Dynamic Update: When the workstation is on-line with the control system, point data shall update dynamically on the graphic images.

d. Graphic Penetration: Provide graphic penetration when the capability exists. For systems without graphic penetration, provide menu penetration for selection of individual graphics to give the same hierarchical affect provided by graphic penetration.

e. Graphic Types: Graphic-based software shall have graphics of the building exterior, building section, floor plans, and mechanical systems. Provide the following graphics:

(1) Building Exterior Graphic: Show exterior architecture, major landmarks, and building number.

(2) Building Section Graphic: Show floors in section graphic with appropriate floor name on each floor.

(3) Floor Plan Graphics: Provide a single graphic for each floor, unless the graphic will contain more information than can reasonably be shown on a single graphic. Each heating or cooling zone within a floor plan shall have a zone name and its current temperature displayed within the zone outline. Show each controlled variable in the zone. Provide visual warning for each point in alarm.

(4) Mechanical System Graphics: Provide two-dimensional drawings to symbolize mechanical equipment; do not use line drawings. Show controlled or sensed mechanical equipment. Each graphic shall consist of a single mechanical system; examples are a graphic for an air handling unit, a graphic for a VAV box, a graphic for a heating water system, and a graphic for a chiller system. Place sensors and controlled devices associated with mechanical equipment in their appropriate locations. Place point name and point value adjacent to sensor or controlled device. Provide visual warning of each point in alarm. Condition, such as zone temperature, associated with the mechanical system shall be shown on the graphic. Point values shall update dynamically on the graphic.

f. Graphic Editing: Full capacity as provided by a draw software package shall be included for operator editing of graphics. Graphics may be created, deleted, modified, and text added. Provide capability to store graphic symbols in a symbol directory and import these symbols into graphics. A minimum of 256 colors shall be available.

g. Dynamic Point Editing: Provide full editing capability for deleting, adding, and modifying dynamic points on graphics.

h. Trending: Trend data shall be displayed graphically, with control variable and process variable plotted as functions of time on the same chart. Graphic display of trend data shall be internal to the workstation software and not resulting from download of trend data into a third-party spreadsheet program such as Excel, unless such transfer is automatic and transparent to the operator, and the third-party software is included with the workstation software package. At the operator's discretion, trend data shall be plotted real time.

2.1.5 Maintenance Personnel Interface Tools

Provide a notebook computer for field communication with the digital controllers. In addition to changing setpoints, and making operational changes, field personnel shall be able to download programs with the notebook computer.

2.1.5.1 Notebook Computer

- a. Provide notebook computer, necessary software, and direct connection cable to communicate with all digital controllers and smart thermostats when directly connected.
- b. Provide notebook computer with the following features as a minimum:
 - (1) Pentium III 1 GHz with active matrix color screen
 - (2) Internal hard disk; minimum 20 Gigabytes
 - (3) Internal battery operation; for a minimum of 3 hours of operation.
 - (4) RAM; minimum 128 Megabytes
 - (5) 24X CD ROM and 3.5 inch 1.44 MB floppy drive
 - (6) Serial interface port or Ethernet port to communicate with the digital controller. Parallel port to communicate with a printer.
 - (7) Software: Digital control manufacturer's graphic DDC software, and all other required programs installed. Windows 98, NT or higher operating system installed. Include all documentation and original media.

2.2 SENSORS AND INPUT HARDWARE

2.2.1 Field Installed Temperature Sensors

2.2.1.1 Thermistors

Precision thermistors may be used in temperature sensing applications below 200 degrees F. Sensor accuracy over the application range shall be 0.36 degree F or less between the range of 0 to 66 degrees C (32 to 150 degrees F). Stability error of the thermistor over five years shall not exceed 0.14 degrees C (0.25 degree F) cumulative. Sensor element and leads shall be encapsulated. Bead thermistors are not allowed. A/D conversion resolution error shall be kept to 0.06 degree C (0.1 degree F). Total error for a thermistor circuit shall not exceed 0.28 degree C (0.5 degree F), which includes sensor error and digital controller A/D conversion resolution error. Provide 18 gage twisted and shielded cable for thermistors.

2.2.1.2 Resistance Temperature Detectors (RTDs)

Provide RTD sensors with 1000 ohm, or higher, platinum elements that are compatible with the digital controllers. Sensors shall be encapsulated in epoxy, series 300 stainless steel, anodized aluminum, or copper. Temperature sensor accuracy shall be 0.1 percent (1 ohm) of expected ohms (1000 ohms) at 0 degrees C (32 degrees F). Temperature sensor stability error over five years shall not exceed 0.14 degree C (0.25 degree F) cumulative. Direct connection of RTDs to digital controllers, without transmitters, is preferred provided controller supports direct connection of RTDs. When RTDs are connected directly to the controller, keep lead resistance error to 0.14 degree C (0.25 degree F) or less. Total error for a RTD circuit shall not exceed 0.28 degree C (0.5 degree F), which includes sensor

error, lead resistance error or 4 to 20 mA or 0 to 10 VDC transmitter error, and A/D conversion resolution error.

2.2.1.3 Temperature Sensor Details

- a. Room Type: Conceal element behind protective cover matched to the room interior. Room temperature sensors connected directly to application specific controllers shall have integral pushbutton, system override digital input button, and a setpoint adjustment lever
- b. Duct Averaging Type: Continuous averaging RTDs for ductwork applications shall be 30 centimeters in length for each 0.37 square meters (one foot in length for each 4 square feet) of ductwork cross-sectional area with a minimum length of 1.8 meter (6 feet). Probe type duct sensors of 30 centimeter (one foot) length minimum are acceptable in ducts 1.1 square meter (12 feet square) and less.
- c. Immersion Type: 75 mm (3 inches) total immersion for use with sensor wells, unless otherwise indicated.
- d. Sensor Wells: Stainless steel material. Provide heat-sensitive transfer agent between exterior sensor surface and interior well surface.
- e. Outside Air Type: Provide element on the buildings north side with sunshade to minimize solar effects. Mount element at least 75 mm (3 inches) from building outside wall. Sunshade shall not inhibit the flow of ambient air across the sensing element. Shade shall protect sensing element from snow, ice, and rain.

2.2.2 Transmitters

Transmitters shall have 4 to 20 mA or 0 to 10 VDC output linearly scaled to the temperature, pressure, humidity, or flow range sensed. Transmitter shall be matched to the sensor, factory calibrated, and sealed. Total error shall not exceed 0.1 percent at any point across the measured span. Supply voltage shall be 24 volts ac or dc. Transmitters shall have non-interactive offset and span adjustments. For temperature sensing, transmitter stability shall not exceed 0.05 degrees C (0.09 degrees F) a year.

2.2.2.1 Spans and Ranges

Transmitter spans or ranges shall meet the following:

- a. Temperature:

- (1) 28 degrees C (50 degrees F) span: Room, chilled water, cooling coil discharge air, return air sensors
- (2) 56 degrees C (100 degrees F) span: Outside air, hot water, heating coil discharge air, mixed air sensors
- (3) 111 degrees C (200 degrees F) span: High temperature hot water, heating hot water, chilled/hot water system sensors.

- b. Pressure:

- (1) -125 to 125 pascals (-0.5 to 0.5) inches water differential range: static pressure control of rooms
- (2) 0 to 1250 pascals (0 to 5 inches) water differential range: Duct static pressure

(3) 0 to 689 kPa (0 to 100 psig) differential: Water differential pressure

c. Relative Humidity:

(1) 10 to 90 percent minimum relative humidity range

2.2.3 Relative Humidity Transmitters

Provide integral humidity transducer and transmitter. Output of relative humidity instrument shall be a 4 to 20 mA or 0 to 10 VDC signal proportional to full range of relative humidity input. Accuracy shall be 2 percent of full scale, long-term stability shall be less than one percent drift per year. Sensing element shall be polymer or thin film polymer type.

2.2.4 Pressure Transmitters

Provide integral pressure transducer and transmitter. Output of pressure instrument shall be a 4 to 20 mA or 0 to 10 VDC signal proportional to the pressure span. Span shall be as specified. Accuracy shall be 1.0 percent. Linearity shall be 0.1 percent.

2.2.5 Current Transducers

Provide current transducers to monitor amperage of motors. Select current transducer for normal measured amperage to be near 50 percent of full-scale range. Current transducers shall have an accuracy of one percent and 4 to 20 mA or 0 to 10 VDC output signal.

2.2.6 Air Quality Sensors

2.2.6.1 CO2 Sensor

Provide CO2 sensors with integral transducers where shown. Output signal shall be 4 to 20 mA or 0 to 10 VDC. Accuracy shall be ± 5 percent of full scale.

2.2.7 Input Switches

2.2.7.1 Timed Local Override

Provide momentary contact push button override with override time set in controller software. Provide to override DDC time of day program and activate occupancy program for assigned units. Upon expiration of override time, the control system shall return to time-of-day program. Time interval for the length of operation shall be software adjustable and shall expire unless reset.

2.2.7.2 Insertion Freeze Protection Switch

Electric switch shall be capillary type. Provide special purpose insertion thermostats with flexible elements a minimum of 6 meters (20 feet) in length for coil face areas up to 3.7 square meters (40 square feet). Switch contacts shall be rated for motor starter circuit voltage being interrupted. Switch shall be equipped with auxiliary set of contacts for input of switch status to digital controller. Provide additional elements or longer elements for larger coils at the rate of 30 centimeters (1-foot) of element per .37 square meters (4 square feet) of coil. Serpentine capillaries perpendicular to the air flow to uniformly sense the entire airflow. A freezing condition at 18-inch increments along the sensing element shall activate the thermostatic switch. Switch shall require manual reset after activation.

2.2.7.3 Electronic Airflow Measurement Stations and Transmitters

a. Station - Each station shall contain an array of velocity sensing elements and straightening vanes inside a flanged sheet metal casing. The velocity sensing elements

shall be of the RTD or thermistor type. The sensing elements shall be distributed across the duct cross section in the quantity and pattern set forth for measurements and instruments of ASHRAE 3 and SMACNA HVACTAB for the traversing of ducted air flows. The resistance to airflow through the airflow measurement station shall not exceed 20 pascals (0.08 inch water gage) at an airflow of 10.16 meters per second (2,000 fpm). Station construction shall be suitable for operation at airflow of up to 25.4 meters per second (5,000 fpm) over a temperature range of 4 to 49 degrees C (20 to 120 degrees F), and accuracy shall be plus or minus 3 percent over a range of 0.635 to 12.7 meters per second (125 to 2,500 fpm) scaled to air volume.

b. Each transmitter shall produce a linear, temperature compensated 4 to 20 mA or 0 to 10 VDC output corresponding to the actual air flow. The transmitter shall be a 2-wire, loop powered device. The output error of the transmitter shall not exceed 0.5 percent of the calibrated measurement.

2.2.8 Energy Metering

2.2.8.1 Electric Meters

Provide LonMark/LonWorks kilowatt-hour (kWh) meter for building as indicated or specified. Integrate electric meter signal into DDC system; meter signal output must be compatible with DDC input. DDC shall measure both instantaneous and accumulated electrical usage.

a. Meter: ANSI C12.10. Provide watt-hour meter and socket corresponding to the ratios of the current transformers and transformer secondary voltage. Meters shall be selected for the building voltage, phase, four-wire wye system, three-element type with three current transformers. Meters shall be complete with a box mounted socket having automatic circuit closing bypass. Provide watt-hour meter with not less than four pointer-type kWh registers, provisions for pulse initiation, and a universal Class 2 indicating maximum kW demand register, sweep pointer indicating type, with a 30-minute interval. Meter accuracy shall be within plus or minus one percent. The correct multiplier shall be provided on face of meter.

b. Current Transformers: ANSI C57.13. Provide three current transformers with 600-volt insulation, rated for metering with voltage, BIL, momentary, and burden ratings coordinated with the ratings of the associated meters. Provide a butyl molded donut or window type transformers mounted on a bracket to allow secondary cables to connect to the transformer bushings. Identify the wiring of the current transformer secondary feeders to permit field current measurements to be taken with hook-on ammeters.

2.3 OUTPUT HARDWARE

2.3.1 Dampers

Damper shall conform to SMACNA DCS.

a. A single damper section shall have blades no longer than 1220 mm (48 inches) and shall be no higher than 1830 mm (72 inches). Maximum damper blade width shall be 203 mm (8 inches). Larger sized damper shall be made from a combination of sections.

b. Dampers shall be steel, or other materials where shown. Flat blades shall be made rigid by folding the edges. Blades shall be provided with compressible seals at points of contact. The channel frames of the dampers shall be provided with jamb seals to minimize air leakage. Dampers shall not leak in excess of 102 L/s per square meter (20 cfm per square foot) at 996 Pa (4 inches water) gage static pressure when closed. Seals shall be suitable for an operating temperature range of minus 40 degrees C to 93 degrees C (40 degrees F to 200 degrees F). Dampers shall be rated at not less than 10 m/s (2000 fpm) air velocity.

All blade-operating linkages shall be within the frame so that blade-connecting devices within the same damper section will not be located directly in the air stream. Damper axles shall be 13 mm (0.5 inch) (minimum) plated steel rods supported in the damper frame by stainless steel or bronze bearings. Blades mounted vertically shall be supported by thrust bearings. Pressure drop through dampers shall not exceed 10 Pa gage at 5 m/s (0.04 inch water gage at 1000 fpm) in the wide-open position. Frames shall not be less than 50 mm (2 inches) in width. Dampers shall be tested in accordance with AMCA 500.

c. Operating links external to dampers (such as crankarms, connecting rods, and line shafting for transmitting motion from damper actuators to dampers) shall withstand a load equal to twice the maximum required damper-operating force. Rod lengths shall be adjustable. Links shall be brass, bronze, zinc-coated steel, or stainless steel. Moving parts in contact with one another shall be of different materials. Working parts of joints and clevises shall be brass, bronze, or stainless steel. Adjustments of crankarms shall control the open and closed position of dampers.

2.3.2 Valves

2.3.2.1 Valve Assembly

Valves shall have stainless steel stems. Valve bodies shall be designed for not less than 862 kPa (gage) (125 psig) working pressure or 150 percent of the system operating pressure, whichever is greater. Valve leakage rating shall be 0.01 percent of rated Cv. Class 125 copper alloy valve bodies and Class 150 steel or stainless steel valves shall conform to ASME/ANSI B16.5 as a minimum. Cast iron valve components shall conform to ASTM A 126 Class B or C as a minimum.

2.3.2.2 Butterfly Valve Assembly

Butterfly valves shall be threaded lug type suitable for dead-end service and for modulation to the fully closed position, with noncorrosive discs, stainless steel shafts supported by bearing, and EPDM seats suitable for temperatures from minus 29 degrees C to plus 121 degrees C (minus 20 degrees F to plus 250 degrees F). Valves shall have a manual means of operation independent of the actuator.

2.3.2.3 Two-Way Valves

Two-way modulating valves shall have equal percentage characteristics.

2.3.2.4 Three-Way Valves

Three-way valves shall have equal percentage characteristics.

2.3.2.5 Duct Coil and Terminal Unit Coil Valves

Provide control valves with either flare-type or solder-type ends provided for duct or terminal-unit coils. Provide flare nuts for each flare-type end valve.

2.3.2.6 Valves for Chilled Water, Condenser Water and Glycol Service

a. Bodies for valves 40 mm (1 1/2 inches) and smaller shall be brass or bronze, with threaded or union ends. Bodies for valves from 50 to 80 mm (2 inches to 3 inches) inclusive shall be of brass, bronze or iron. Bodies for 50 mm (2 inch) valves shall have threaded ends. Bodies for valves from 65 to 80 mm (2 1/2 to 3 inches) shall have flanged-end connections. Internal valve trim shall be brass or bronze except that valve stems may be Type 316 stainless steel. Water valves shall be sized for a 21 kPa (3 psi) differential through the valve at rated flow, except as indicated otherwise. Select valve flow coefficient

(Cv) for an actual pressure drop not less than 50 percent or greater than 125 percent of the design pressure drop at design flow.

b. Valves 100 mm (4 inches) and larger shall be butterfly valves.

2.3.2.7 Valves for Hot Water Service

Valves for hot water service below 121 degrees C (250 Degrees F):

a. Bodies for valves 40 mm(1 1/2 inches) and smaller shall be brass or bronze with threaded or union ends. Bodies for valves larger than 50 mm (2 inches) shall have flanged-end connections. Water valves shall be sized for a 21 kPa (3 psi) differential through the valve at rated flow, except as indicated otherwise. Select valve flow coefficient (Cv) for an actual pressure drop not less than 50 percent or greater than 125 percent of the design pressure drop at design flow.

b. Internal trim, including seats, seat rings, modulation plugs, and springs, of valves controlling water hotter than 99 degrees C (210 degrees F) shall be Type 316 stainless steel.

c. Internal trim for valves controlling water 99 degrees C (210 degrees F) or less shall be brass or bronze.

d. Non-metallic parts of hot water control valves shall be suitable for a minimum continuous operating temperature of 121 degrees C or 28 degrees C (250 degrees F or 50 degrees F) above the system design temperature, whichever is higher.

e. Valves 100 mm (4 inches) and larger shall be butterfly valves.

2.3.3 Actuator

2.3.3.1 Electric Actuators

Provide direct drive electric actuators for all control applications. When operated at rated voltage, each actuator shall be capable of delivering torque required for continuous uniform motion and shall have end switch to limit travel, or shall withstand continuous stalling without damage. Actuators shall function properly with range of 85 to 110 percent of line voltage. Provide gears of steel or copper alloy. Fiber or reinforced nylon gears may be used for torque less than 1.8 Newton meters (16 inch pounds). Provide hardened steel running shafts in sleeve bearing of copper alloy, hardened steel, nylon, or ball bearing. Provide two-position actuators of the single direction, spring return, or reversing type. Provide proportioning actuators capable of stopping at all points in the cycle and starting in either direction, from any point. Provide reversing and proportioning actuators with limit switches to limit travel in either direction unless operator is stall type. Actuators shall have a simple switch for reversing direction, and a button to disengage clutch for manual adjustments. Provide reversible shaded pole, split capacitor, synchronous, or stepper type electric motors.

2.3.3.2 Pneumatic Actuators

Provide piston or diaphragm type actuator with full range or split range springs to provide required sequence specified and fail safe operation.

2.3.4 Output Signal Conversion

2.3.4.1 Electronic to Pneumatic Transducer

Electronic to pneumatic transducer shall convert 4 to 20 mA or 0 to 10 VDC digital controller output signal to a proportional 0 to 20 psig pressure signal (operator scaleable). Accuracy shall be 1.0 percent or better. Linearity shall be 0.1 percent. Transducer shall have feedback circuit that converts pneumatic signal to a proportional 4 to 20 mA or 0 to 10 VDC signal.

2.3.4.2 Pneumatic to Electronic Pressure Transducer

Pneumatic to electronic transducer shall convert 0 to 20 psig signal to a proportional 4 to 20 mA or 0 to 10 VDC signal (operator scaleable). Supply voltage shall be 24 VDC. Accuracy shall be 1.0 percent or better. Linearity shall be 0.1 percent.

2.3.5 Output Switches

2.3.5.1 Control Relays

Shall be double pole, double throw (DPDT), UL listed, with contacts rated to the application, indicator light, and dust proof enclosure. Light indicator is lit when coil is energized and is off when coil is not energized. Relays shall be socket type, plug into a fixed base, and replaceable without need of tools or removing wiring. Encapsulated "PAM" type relays are permissible for terminal control applications.

2.3.5.2 Solenoid Air Valves

Each valve shall have three port operation: common, normally open, and normally closed. Internal parts shall be brass, bronze, or stainless steel. Valves shall be rated at 344 kPa (50 psig) minimum when used in a control system operating at 172 kPa (25 psig) or less, or 1034 kPa (150 psig) when used in a control system operating in the range 172 to 689 kPa (25 to 100 psig).

2.4 ELECTRICAL POWER AND DISTRIBUTION

For control power provide a new, dedicated source 120 volts or less, 60 Hz, three wire (black, white, and green). Run green ground wire to panel ground; conduit grounds are not sufficient.

2.4.1 Transformers

Transformers shall conform to UL 506. Power digital controllers and terminal control units (TCU's) from dedicated circuit breakers with surge protection specified. Transformers for digital controllers serving terminal equipment on lower level LANs may be grouped to have specified surge protection sized for the number of controllers on a single transformer. Provide a fuse on the secondary side of the transformer.

2.4.2 Surge Protection

Surge and transient protection consist of devices installed externally to digital controllers.

2.4.2.1 Power Line Surge Protection

Surge suppressors external to digital controller, shall be installed on all incoming AC power. Surge suppressor shall be rated by UL 1449, have a fault indicating light, and have clamping voltage ratings below the following levels:

- a. Unit is a transient voltage surge suppressor 120 VAC/1 phase/2 wire plus ground, hard wire individual equipment protector.
- b. Unit must react within 5 nanoseconds and automatically reset.

- c. Voltage protection threshold, line to neutral, starts at no more than 211 volts peak on the 120 VAC line.
- d. The transient voltage surge suppressor must have an independent secondary stage equal to or greater than the primary stage joule rating.
- e. The primary suppression system components must be pure Silicon Avalanche Diodes.
- f. Silicon Avalanche Diodes or Metal Oxide Varistors are acceptable in the independent secondary suppression system.
- g. The Transient Suppression System shall incorporate an indication light which denotes whether the primary and/or secondary transient protection components is/are functioning.
- h. All system functions of the Transient Suppression System must be individually fused and not short circuit the AC power line at any time.
- i. The Transient Suppression System shall incorporate an EMI/RFI noise filter with a minimum attenuation of 13 dB at 10 kHz to 300 MHz.
- j. The system must comply with IEEE C62.41, Class "B" requirements and be tested according to IEEE C62.45.
- k. The system shall operate at -20 to +50 degrees C (-4 to 122 degrees F).

2.4.2.2 Telephone and Communication Line Surge Protection

Provide transient surge protection to protect the DDC controllers and LAN related devices from surges that occur on the phone lines (modem or direct connect) and on inter-unit LAN communications. Devices shall be UL listed.

- a. The surge protection shall be a rugged package with continuous, non-interrupting protection and not use crowbar technology. Instant automatic reset after safely eliminating transient surges, induced lightning, and other forms of transient over voltages.
- b. Unit must react within 5 nanoseconds using only solid-state silicone avalanche technology.
- c. Unit shall be installed at the proper distance as recommended by the manufacturer.

2.4.2.3 Controller Input/Output Protection

Controller input/output points shall surge protection with optical isolation, metal oxide varistors (MOV), or silicon avalanche devices. Fuses are not permitted for surge protection.

2.4.3 Wiring

Provide complete electric wiring for DDC System, including wiring to transformer primaries. Control circuit wiring shall not run in the same conduit as power wiring over 100 volts. Circuits operating at more than 100 Volts shall be in accordance with Section 16415 ELECTRICAL WORK, INTERIOR. Circuits operating at 100 Volts or less shall be defined as low voltage and shall be run in rigid or flexible conduit, metallic tubing, metal raceways or wire trays, armored cable, or multi-conductor cable. Provide circuit and wiring protection as required by NFPA 70. Aluminum-sheathed cable or aluminum conduit may be used but shall not be buried in concrete. Use conduit or plenum-rated cable in HVAC plenums. HVAC plenums include the space between a drop ceiling and the architectural ceiling, within walls, and within ductwork. Protect exposed wiring from abuse and damage.

2.4.3.1 AC Control Wiring

- a. Control wiring for 24 V circuits shall be insulated copper 18 AWG minimum and rated for 300 VAC service.
- b. Wiring for 120 V shall be 14 AWG minimum and rated for 600 V service.

2.4.3.2 Analog Signal Wiring

Analog signal wiring shall be 18 AWG single or multiple twisted pair. Each cable shall be 100 percent shielded, and have 20 AWG drain wire. Each wire shall have insulation rated to 300 V ac. Cables shall have an overall aluminum-polyester or tinned-copper (cable-shield tape). Install analog signal wiring in conduit separate from AC power circuits.

2.5 FIRE PROTECTION DEVICES

Provide smoke detectors in return and supply air ducts on downstream side of filters in accordance with NFPA 90A, except as otherwise indicated. Provide UL listed or FM approved detectors for duct installation.

2.5.1 Smoke Detectors

Provide in systems having air handling capacity over 944 l/s (2,000 cfm) in accordance with NFPA 90A. Design for detection of abnormal smoke densities by the ionization or photoelectric principle, responsive to both invisible and visible particles of combustion, and not susceptible to operation by changes to relative humidity. Provide UL listed or FM approved detectors for duct installation. Provide duct detectors with an approved duct housing, mounted exterior to duct, and with perforated sampling tubes extending across width of duct. Provide 115 V ac power supply unit integral with duct housing. Duct smoke detectors shall conform to the requirements of UL 268A. Duct smoke detectors shall have perforated sampling tubes extended into the air duct. Detector circuitry shall be mounted in a metallic enclosure exterior to the duct. Detectors shall have manual reset. Detectors shall be rated for air velocities that include air flows between 2.5 and 20 m/s. 500 and 4000 fpm. Detectors shall be powered from the HVAC control panel. Detectors shall have two sets of normally open alarm contacts and two sets of normally closed alarm contacts. Detectors shall be connected to the building fire alarm panel for alarm initiation. A remote annunciation lamp and accessible remote reset switch shall be provided for duct detectors that are mounted eight feet or more above the finished floor and for detectors that are not readily visible. Remote lamps and switches as well as the affected fan units shall be properly identified in etched rigid plastic placards. Detectors shall have test port or test switch. Provide each detector with a visible indicator lamp that lights when detector is activated. Activation of duct detector shall cause shutdown of associated air handling unit and closing of dampers and shall sound an alarm bell, minimum 6 inch diameter in a normally occupied area located as directed. Provide a separate bell for each air handling unit, with an engraved plastic or metal label indicating which unit each bell annunciates.

2.6 INDICATORS

2.6.1 Thermometers

2.6.2 Pressure Gages

- a. Provide pressure gages for all pneumatic outputs. Select gage range so normal pressures are approximately equal to the midpoint readings on the scale, unless otherwise specified. Accuracy shall be plus or minus 2 percent of the range. Gages shall conform to ANSI/ASME B40.1.

b. Gages indicating pneumatic outputs shall have 2 inch diameter faces. Scale shall be 0 to 207 kPa (0 to 30 psi), with 7 kPa (1 psi) graduations.

c. Gages for low differential pressure measurements shall be 4 1/2 inch (nominal) size with two sets of pressure taps, and shall have a diaphragm actuated pointer, white dial with black figures, and pointer zero adjustment. Gage shall have ranges and graduations as appropriate for the application, or as shown. Accuracy shall be plus or minus 2 percent of scale range.

2.7 PNEUMATIC POWER SUPPLY AND TUBING

2.7.1 Air Compressors

Provide tank mounted, duplex, electric motor driven, oil type, air cooled, reciprocating type air compressor including motor, controller, pressure switch, belt guard, pressure relief valve, and automatic moisture drain valve. Piston speed shall not exceed 137 meters/min (450 fpm). Set relief valve for 69 to 172 kPa (10 to 25 psig) above the control switch cut-off pressure. Pressure switch shall start compressor at 482 kPa (70 psig) and stop compressor at 620 kPa (90 psig). Size each compressor to run not more than 33 percent of the time with full system control load. Compressor shall have maintaining type starter for automatic restart after power failure. Provide duplex air compressors with electric alternator switch assembly. Motors 0.5 hp and larger shall be three-phase, 208 or 460-volt, 60 Hz.

2.7.2 Compressed Air Tank

Provide steel tank constructed and labeled in accordance with ASME BPVC SEC VIII for a minimum of 1378 kPa (200 psig) working pressure.

2.7.3 Intake Air Filter and Silencer

Provide dry-type combination intake air filter and silencer with baked enamel steel housing. Filter shall be 99 percent efficient at 10 micron rating.

2.7.4 Refrigerated Air Dryer

a. Provide a refrigerant dryer sized for continuous operation to reduce the compressed air dew point temperature, at 138 kPa (20 psig) output pressure, to 30 degrees F with average tank pressure of 551 kPa (80 psig) and ambient air temperature between 12.7 and 35 degrees C (55 and 95 degrees F). Provide dryer with an automatic condensate drain trap with a manual override feature. Provide refrigerant gages for suction lines.

b. Connect dryer in the high pressure piping between tank and pressure-reducing valve.

2.7.5 Compressed Air Discharge Filter

a. Provide dry type filter, 99 percent efficient in removing oil and solid particles at 0.03 micron rating, with baked enamel steel housing and manual drain valve. Provide visual indicator to show when oil filter element should be changed.

b. Provide disposable filter directly before each control module with pneumatic outputs. Disposable filter shall eliminate 99.99 percent of all liquid or solid contaminants 0.1 micron or larger. Provide filter with easy to remove fittings.

2.7.6 Air Pressure-Reducing Station

Provide pressure-reducing valve (PRV) with field adjustable range of 0 to 344 kPa (0 to 50 psig) discharge pressure, with inlet pressure of 483 to 620 kPa (70 to 90 psig). Provide factory-set pressure relief valve to relieve overpressure downstream of PRV exceeding 172 kPa (25 psig). Provide inlet pressure gage with range of 0 to 689 kPa (0 to 100 psig) and outlet pressure gage with range of 0 to 207 kPa (0 to 30 psig). For two pressure systems, provide an additional PRV and outlet pressure gage.

2.7.7 Pneumatic Tubing

2.7.7.1 Copper Tubing

Provide ASTM B 75 or ASTM B 88M (ASTM B 88) rated tubing. Tubing 9.52 mm (0.375 inch) outside diameter and larger shall have minimum wall thickness equal to ASTM B 88M (ASTM B 88), Type M. Tubing less than 9.52 (0.375 inch) outside diameter shall have minimum wall thickness of 0.635 mm (0.025 inch). Concealed tubing shall be hard or soft copper; multiple tubing shall be racked or bundled. Exposed tubing shall be hard copper; rack multiple tubing. Tubing for working pressures greater than 207 kPa (30 psig) shall be hard copper. Bundled tubing shall have each tube numbered each 1.82 meter (six feet) minimum. Racked and individual tubes shall be permanently identified at each end. Fittings shall be solder type ANSI B16.18 or ASME/ANSI B16.22, using ASTM B 32, 95-5 tin-antimony solder, or compression type ASME/ANSI B16.26.

2.7.7.2 Polyethylene Tubing

Provide flame-resistant, multiple polyethylene tubing in flame-resistant protective sheath, or unsheathed polyethylene tubing in rigid metal, intermediate metal, or electrical metallic tubing conduit for areas where tubing is exposed. Single, unsheathed, flame-resistant polyethylene tubing may be used where concealed in walls or above ceilings and within control panels. Provide polyethylene tubing only for working pressures of 207 kPa (30 psig) or less. Number each tube in sheathing each two feet minimum. Permanently identify unsheathed tubing at each end. Fittings shall be compression or barbed push-on type. Extruded seamless polyethylene tubing shall conform to the following:

- a. Minimum Burst Pressure Requirements: 689 kPa at 23.8 degrees C (100 psig at 75 degrees F) to 172 kPa at 65.5 degrees C (25 psig at 150 degrees F);
- b. Stress Crack Resistance: ASTM D 1693, 200 hours minimum;
- c. Tensile Strength (Minimum): ASTM D 638, 7584 kPa (1100 psi);
- d. Flow Rate (Average): ASTM D 1238, 0.30 decigram per minute; and
- e. Density (Average): ASTM D 792, 920 kg/m³.

2.8 VARIABLE FREQUENCY 3 PHASE MOTOR DRIVES

The variable frequency drive (VFD) shall convert 208 or 460 volt (+/- 10%), three phase, 60 hertz (+/- 2Hz), utility grade power to adjustable voltage/frequency, three phase, AC power for stepless motor control from 5% to 105% of base speed.

2.8.1 Description

The variable frequency drive (VFD) shall produce an adjustable AC voltage/ frequency output for complete motor speed control. The VFD must meet all of the following criteria.

- a. The VFD shall use sinecoded PWM technology. The sinecoded PWM calculations are performed by the VFD microprocessor.
- b. The VFD shall use IGBT transistors for the inverter's three phase output.
- c. The VFD shall use a three phase diode bridge converter to charge the VFD constant voltage capacitor buss.
- d. The VFD shall have the ability for control by either a remote 4-20 mA or 0 to 10 VDC control signal or from a local control panel located on the VFD itself.
- e. The VFD shall use microprocessor technology for VFD control. The VFD shall be programmable with a permanently mounted keypad included with each VFD.
- f. The VFD shall be fully self diagnostic. No external programmers, analyzers, interrogators, or diagnostic boards, shall be needed to annunciate VFD faults or drive internal status.

2.8.2 Code Standards

VFD shall be UL listed as delivered to the end user. The VFD shall meet current National Electrical Code.

2.8.3 VFD Quality Assurance

To ensure quality, each and every VFD shall be subject to a series of in-plant quality controlled inspections before approval for shipment from the manufacture's facilities.

- a. All components shall be tested prior to assembly and the complete unit shall be tested under full load conditions to ensure maximum product reliability.
- b. The VFDs shall be the current standard production unit with at least 10 identical units already in the field.
- c. Engineering support shall be available from the factory of the VFD. Phone support shall be free of charge to the end user for the life of the equipment. Factory support shall be available in the English language.

2.8.4 VFD Service

The VFD shall be supplied with:

- a. 24 month parts and labor warranty. The warranty shall start when the system is accepted by the end user or 30 months from date of shipment.
- b. Installation, operation, and troubleshooting guide(s).
- c. A district service support group shall provide the following additional services:
 - (1) Factory trained personal on-site for start-up for up to one working day at no additional cost. Personnel shall be competent in operation and repair of the particular model of VFD that is installed.
 - (2) On-site training of customer personnel in basic installation, troubleshooting, and operation of VFDs at no additional cost. This training shall be conducted for up to 6 personnel at the installation site for a minimum of 4 hours.

2.8.5 Basic VFD Features

The VFD shall have the following basic features with no more than three separate internal electronic boards.

- a. VFD mounted operator control keypad capable of:
 - (1) Remote/Local operator selection with password access.
 - (2) Run/Stop and manual speed commands.
 - (3) All programming functions.
 - (4) Scrolling through all display functions.
- b. Digital display capable of indicating:
 - (1) VFD status.
 - (2) Frequency.
 - (3) RPM of motor.
 - (4) Phase current.
 - (5) Fault diagnostics in descriptive text.
 - (6) All programmed parameters.
- c. Standard PI loop controller with input terminal for controlled variable and parameter settings made while inverter running.
- d. User interface terminals for end-user remote control of VFD speed, speed feedback, and isolated form C SPDT relay energized on drive fault condition.
- e. An isolated form C SPDT auxiliary relay energized on run command.
- f. The VFD shall have a metal NEMA 1 enclosure.
- g. The VFD shall have an adjustable carrier frequency with 16 KHz minimum upper limit.
- h. The VFD shall have a built in or external line reactor with 3% minimum impedance to protect DC buss capacitors and rectifier section diodes.

2.8.6 Programmable Parameters

The VFD shall include the following operator programmable parameters:

- a. Upper limit frequency.
- b. Lower limit frequency.
- c. Acceleration rate.
- d. Deceleration rate.

- e. Variable torque volts per Hertz curve.
- f. Starting voltage level.
- g. Starting frequency level.
- h. Display speed scaling.
- i. Enable/disable auto-restart feature.
- j. Enable/disable softstall feature.
- k. Motor overload level.
- l. Motor stall level.
- m. Jump frequency and hysteresis band.
- n. PWM carrier frequency.

2.8.7 Protective Circuits and Features

- a. An electronic adjustable inverse time current limit with consideration for additional heating of the motor at frequencies below 45Hz, for the protection of the motor.
- b. An electronic adjustable soft stall feature, allowing the VFD to lower the frequency to a point where the motor will run at FLA when an overload condition exists at the requested frequency. The VFD will automatically return to the requested frequency when load condition permit.
- c. The VFD will have a separate electronic stall at 110% VFD rated current and a separate hardware trip at 190% current.
- d. The VFD shall have ground fault protection that protects output cables and motor from grounds during both starting and continuous running conditions.
- e. The VFD shall have the ability to restart after the following faults:
 - (1) Overcurrent (drive or motor).
 - (2) Power outage.
 - (3) Phase loss.
 - (4) Overvoltage/Undervoltage.
- e. The VFD shall restart into a rotating load without tripping or damaging the VFD or the motor.
- f. The VFD shall keep a log of a minimum of four previous fault conditions, indicating type and time of occurrence in descriptive text.
- g. The VFD shall be able to sustain 110% rated current for 60 sec.
- h. The VFD shall respond to and record the following fault conditions:

- (1) Over current (and have an indication if the over current was during acceleration, deceleration, or running).
- (2) Overcurrent internal to the drive.
- (3) Motor overload at start-up.
- (4) Over voltage from the utility power.
- (5) Motor running overload.
- (6) Overvoltage during deceleration.
- (7) VFD over heat.
- (8) Load end ground fault.
- (9) Abnormal parameters or data in VFD EEPROM.

2.8.8 Operational Conditions

The VFD shall be designed and constructed to operate within the following service conditions.

- a. Ambient Temperature Range, -17.7 to 48.8 degrees C (0 to 120 deg. F).
- b. Non-condensing relative humidity to 90%.

2.8.9 Available Options

Provide the following options:

- a. RFI/EMI filters
- b. RS232 or RS422/485 interface card with application software which can both control and monitor the VFD from a attached computer. Provide LonMark/LonWorks or BACnet interface cards when required by specifications or sequence of operations.
- c. A manual bypass circuit and switch integral or external to the drive to allow drive bypass drive and operate at 100% speed. Overload fuses and other protective hardware shall remain in the circuit during bypass.
- d. One set of spare parts per drive including: all replaceable circuit cards, power diode assemble, DC Buss capacitor, power output transistor assembly, all fuses, and all lights. Package parts individually for long term storage and clearly label contents.

PART 3 EXECUTION

3.1 INSTALLATION

Perform installation under supervision of competent technicians regularly employed in the installation of DDC systems.

3.1.1 Wiring Criteria

- a. Input/output identification: Permanently label each field wire, cable, or pneumatic tube at each end with unique descriptive identification.
- b. Rigid or flexible conduit shall be terminated at all sensors and output devices.
- c. Surge Protection: Install surge protection per manufacturer's specification.
- d. Grounding: Ground controllers and cabinets to a good earth ground. Ground controller to a ground in accordance with Section 16415 ELECTRICAL WORK, INTERIOR. Grounding of the green ac ground wire, at the breaker panel, alone is not adequate. Run metal conduit from controller panels to adequate building grounds. Ground sensor drain wire shields at controller end.
- e. Contractor is responsible for correcting all associated ground loop problems.
- d. Wiring in panel enclosures shall be run in covered wire track.

3.1.2 Digital Controllers

- a. Do not divide control of a single mechanical system such as an air handling unit, boiler, chiller, or terminal equipment between two or more controllers. A single controller shall manage control functions for a single mechanical system. It is permissible, however, to manage more than one mechanical system with a single controller.
- b. Provide digital control cabinets that protect digital controller electronics from dust, at locations shown on the drawings.

3.1.3 Temperature Sensors

Provide temperature sensors in locations to sense the appropriate condition. Provide sensor where they are easy to access and service without special tools. Calibrate sensors to accuracy specified. In no case will sensors designed for one application be installed for another application.

3.1.3.1 Room Temperature Sensors

Provide on interior walls to sense average room temperature conditions. Avoid locations near heat sources or which may be covered by office furniture. Room temperature sensors should not be mounted on exterior walls when other locations are available. Mount center of sensor at 5 feet above finished floor.

3.1.3.2 Duct Temperature Sensors

- a. Provide sensors in ductwork in general locations as indicated. Select specific sensor location within duct to accurately sense appropriate air temperatures. Do not locate sensors in dead air spaces or positions obstructed by ducts or equipment. Install gaskets between the sensor housing and duct wall. Seal duct and insulation penetrations.
- b. String duct averaging sensors between two rigid supports in a serpentine position to sense average conditions. Insulate temperature sensing elements from supports. Provide hinged duct access doors to install averaging sensors if needed.
- c. Locate freeze protection sensors in appropriate locations to sense lowest temperatures, to avoid potential problems with air stratification.

3.1.3.3 Immersion Temperature Sensors

Provide thermowells for sensors measuring temperatures in liquid applications or pressure vessels. Locate wells to sense continuous flow conditions. Do not install wells using extension couplings. Where piping diameters are smaller than the length of the wells, provide wells in piping at elbows to sense flow across entire area of well. Wells shall not restrict flow area to less than 70 percent of pipe area. Increase piping size as required to avoid restriction. Provide thermowells with thermal transmission material within the well.

3.1.3.4 Outside Air Temperature Sensors

Provide outside air temperature sensor in weatherproof enclosure on north side of the building, away from exhaust hoods, air intakes and other areas that may affect temperature readings. Provide sunshields to from direct sunlight.

3.1.4 Damper Actuators

Actuators shall not be mounted in the air stream.

3.1.5 Thermometers

Provide thermometers at locations indicated. Mount thermometers to allow reading when standing on the floor.

3.1.6 Pressure Sensors

3.1.6.1 Differential Pressure

- a. Duct Static Pressure Sensing: Locate duct static pressure tip approximately two-thirds of distance from supply fan to end of duct with the greatest pressure drop.
- b. Pumping Proof with Differential Pressure Switches: Install high pressure side between pump discharge and check valve.
- c. Steam Pressure Sensing: Install snubbers and isolation valves on steam pressure sensing applications.

3.1.7 Pressure Gages

Pneumatic output lines shall have pressure gages mounted near the digital controllers.

3.1.8 Pneumatic Tubing

Run concealed tubing in finished areas, and run exposed tubing in unfinished areas such as mechanical equipment rooms. For tubing to be enclosed in concrete, provide rigid metal conduit or intermediate metal conduit. Provide tubing parallel and perpendicular to building walls throughout. Maximum spacing between tubing supports shall be 1.5 meters (5 feet). With the compressor turned off, test each tubing system pneumatically at 1.5 times the working pressure, with a maximum pressure drop of 7 kPa (1 psig). Correct leaks. Caulking of joints will not be permitted. Do not run tubing and electrical power conductors in the same conduit.

3.1.9 Control Drawings

- a. Post laminated copies of as-built control system drawings in each mechanical room.
- b. Provide 3 sets of as-built control drawings to the Contracting Officer.

3.2 TEST AND BALANCE SUPPORT

Controls contractor will coordinate with and provide full time on-site technical support to test and balance (TAB) personnel specified under Section 15990 TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS or any other documents in the project specification. This support shall include:

- a. On-site operation of control systems for proper operating modes during all phases of balancing and testing.
- b. Control setpoint adjustments for proper balancing of all relevant mechanical systems, including VAV boxes.
- c. Setting all control loops with setpoints and adjustments determined by TAB personnel.

3.3 FIELD QUALITY CONTROL

3.3.1 General

- a. Demonstrate compliance of the heating, ventilating, and air conditioning control system with the contract documents. Furnish personnel, equipment, instrumentation, and supplies necessary to perform calibration and site testing. Ensure that test personnel are regularly employed in the testing and calibration of DDC systems.
- b. Testing will include the field tests and the performance verification tests. Field tests shall demonstrate proper calibration of input and output devices, and the operation of specific equipment. Performance verification test shall ensure proper execution of the sequence of operation and proper tuning of control loops.
- c. Obtain approval of the field test plan and performance verification test plan for each phase of testing before beginning that phase of testing. Give to the Contracting Officer written notification of planned testing at least 30 days prior to test. Notification shall be accompanied by the proposed test procedures. In no case will the Contractor be allowed to start testing without written Government approval of field test plan and performance verification test plan.
- d. Before scheduling the performance verification test, furnish field test documentation and written Certified Statement of Field Test Completion to the Contracting Officer for approval. The statement, certified by the DDC system provider, states that the installed system has been calibrated, tested, and is ready for the performance verification test. Do not start the performance verification test prior to receiving written permission from the Government.
- e. Tests are subject to oversight and approval by the Contracting Officer. The testing shall not be run during scheduled seasonal off-periods of heating and cooling systems.

3.3.2 Test Reporting for Field Testing and Performance Verification Tests

- a. During and after completion of the Field Tests, and again after the Performance Verification Tests, identify, determine causes, replace, repair or calibrate equipment that fails to meet the specification, and submit a written report to the Government.
- b. Document all tests with detailed test results. Explain in detail the nature of each failure and corrective action taken. Provide a written report containing test documentation after the Field Tests and again after the Performance Verification Tests. Convene a test review meeting at the job site to present the results to the Government. As part of this test review meeting, demonstrate by performing all portions of the field tests or performance verification

test that each failure has been corrected. Based on the report and test review meeting, the Government will determine either the restart point or successful completion of testing. Do not retest until after receipt of written notification by the Government. At the conclusion of retest, assessment will be repeated.

3.3.3 Contractor's Field Tests

Field tests shall include the following:

3.3.3.1 System Inspection

Observe the HVAC system in its shutdown condition. Check dampers and valves for proper normal positions. Document each position for the test report.

3.3.3.2 Calibration Accuracy and Operation of Inputs Test

Verify correct calibration and operation of input instruments. For each sensor and transmitter, including those for temperature, pressure, humidity, and air quality, record the reading at the sensor or transmitter location using calibrated test equipment. On the same table, record the corresponding reading at the digital controller for the test report. The test equipment shall have been calibrated within one year of use. Test equipment calibration shall be traceable to the measurement standards of the National Institute of Standards and Technology.

3.3.3.3 Actuator Range Adjustment Test

With the digital controller, apply a control signal to each actuator and verify that the actuator operates properly from its normal position to full range of stroke position. Record actual spring ranges and normal positions for all modulating control valves and dampers. Include documentation in the test report.

3.3.3.4 Digital Controller Startup and Memory Test

Demonstrate that programming is not lost after a power failure, and digital controllers automatically resume proper control after a power failure.

3.3.3.5 Surge Protection Test

Show that surge protection, meeting the requirements of this specification, has been installed on incoming power to the digital controllers and on communications lines.

3.3.3.6 Application Software Operation Test

Test compliance of the application software for:

- a. Ability to communicate with the digital controllers, uploading and downloading of control programs
- b. Text editing program: Demonstrate the ability to edit the control program off line.
- c. Reporting of alarm conditions: Force alarms conditions for each alarm, and ensure that workstation receives alarms.
- d. Reporting trend and status reports: Demonstrate ability of software to receive and save trend and status reports.

3.3.4 Performance Verification Tests

Conduct the performance verification tests to demonstrate control system maintains setpoints, control loops are tuned, and controllers are programmed for the correct sequence of operation. Conduct performance verification test during seven days of continuous HVAC and DDC systems operation and before final acceptance of work. Specifically the performance verification test shall demonstrate the following:

3.3.4.1 Execution of Sequence of Operation

Demonstrate the HVAC system operates properly through the complete sequence of operation, for example seasonal, occupied/unoccupied, and warm-up. Demonstrate proper control system response for abnormal conditions by simulating these conditions. Demonstrate hardware interlocks and safeties work. Demonstrate the control system performs the correct sequence of control after a loss of power.

3.3.4.2 Control Loop Stability and Accuracy

Furnish the Government graphed trends of control loops to demonstrate the control loop is stable and that setpoint is maintained. Control loop response shall respond to setpoint changes and stabilize in 3 minutes. Control loop trend data shall be real time and the time between data points shall not be greater than one minute. The contractor shall provide a printer, either the project printer or temporary, at the job site for printing graphed trends. The printer shall remain on the job site throughout Performance Verification Testing to allow printing trends.

3.4 TRAINING

Submit a training course schedule, syllabus, and training materials 14 days prior to the start of training. Furnish a qualified instructor to conduct training courses for designated personnel in the maintenance and operation of the HVAC and DDC system. Orient training to the specific system being installed under this contract. Use operation and maintenance manual as the primary instructional aid in contractor provided activity personnel training. Base training on the Operations and Maintenance manuals and a DDC training manual. Manuals shall be delivered for each trainee with two additional sets delivered for archiving at the project site. Training manuals shall include an agenda, defined objectives and a detailed description of the subject matter for each lesson. Furnish audio-visual equipment and all other training materials and supplies. A training day is defined as 8 hours of classroom or lab instruction, including two 15 minute breaks and excluding lunch time, Monday through Friday, during the daytime shift in effect at the training facility. For guidance, the Contractor should assume the attendees will have a high school education and are familiar with HVAC systems.

3.4.1 DDC Training Phase I

The first class shall be taught for a period of 2 consecutive training days at least 2 weeks prior to the scheduled Performance Verification Test. The first course shall be taught in a government provided facility on base. Training shall be classroom, but have hands-on operation of similar digital controllers. A maximum of 8 personnel will attend this course. Upon completion of this course, each student, using appropriate documentation, should be able to perform elementary operations, with guidance, and describe the general hardware architecture and functionality of the system. This course shall include but not be limited to:

- a. Theory of operation
- b. Hardware architecture
- c. Operation of the system
- d. Operator commands

- e. Control sequence programming
- f. Data base entry
- g. Reports and logs
- h. Alarm reports
- i. Diagnostics

3.4.2 DDC Training Phase II

The second course shall be taught in the field, using the operating equipment at the project sites for a total of 2 consecutive days. A maximum of 8 personnel will attend the course. The course shall consist of hands-on training under the constant monitoring of the instructor. Course content should duplicate DDC Training Phase I course as applied to the installed system. The instructor shall determine the level of the password to be issued to each student before each session. Upon completion of this course, students should be fully proficient in the operation of each system function.

END OF SECTION

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